

SEQUENCE LISTING

<110> United ty of California
 Carson, Dennis A.
 Corr, Maripat
 Rhee, Chae-Seo
 Lorenzo, Leoni M.
 Malini, Sen

<120> IMMUNOLOGIC COMPOSITIONS AND METHODS FOR STUDYING AND TREATING CANCERS EXPRESSING FRIZZLED ANTIGENS

<130> 22000-20629.00

<140> 09/847,102

<141> 2001-05-01

<160> 138

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Forward primer

<400> 1

cccagagctg caagagctac

20

<210> 2

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Forward primer

<400> 2

gccgtgccgc tctatctgtg ag

22

<210> 3

<211> 28

<212> DNA <213> Artificial Sequence

<220>

<223> Forward primer

<400> 3

ataggcctga tcatctgaat ctccttca

28

<210> 4

<211> 28 <212> DNA <213> Artificial Sequence	
<220> <223> Forward primer	
<400> 4 aacctcggct acaacgtgag accaagat	28
<210> 5 <211> 22 <212> DNA <213> Artificial Sequence	
<220> <223> Forward primer	
<400> 5 atcggctaca acctgacgca ca	22
<210> 6 <211> 28 <212> DNA <213> Artificial Sequence	
<220> <223> Forward primer	
<400> 6 tctggaatgt tcaccaaaca ttgaaact	28
<210> 7 <211> 25 <212> DNA <213> Artificial Sequence	
<220> <223> Forward primer	
<400> 7 ctcatgaaca agttcggctt ccagt	25
<210> 8 <211> 27 <212> DNA <213> Artificial Sequence	
<220> <223> Forward primer	
<400> 8 gatgaggatg agagtgaggt gacatcc	27
<210> 9 <211> 18 <212> DNA	

<213> Artificial Se	Sequence	
<220> <223> Forward prime	ner	
<400> 9 cacgcgctgt gcatggag	ng	18
<210> 10		
<211> 19 <212> DNA		
<213> Artificial Se	Sequence	
<220>		
<223> Forward prime	er	
<400> 10		1.0
catggaggcg cccaaca	.ac	19
<210> 11 <211> 20		
<211> 20 <212> DNA		
<213> Artificial Se	equence	
<220>		
<223> Reverse prime	er	
<400> 11		
cacgatcagc gtcataag	.ggt	20
<210> 12		
<211> 18 <212> DNA		
<213> Artificial Se	equence	
<220>		
<223> Reverse prime	er	•
<400> 12		
gtggcgcggg aagtgcto	C	18
<210> 13		
<211> 28 <212> DNA		
<213> Artificial Se	equence	
<220>		
<223> Reverse prime	er	
<400> 13		
tcttggcaca tcctcaag	ggt aataggtt	28
<210> 14	^	
<211> 27 <212> DNA		
<213> Artificial Se	equence	

<220>	
<223> Reverse primer	
<400> 14	
gtactggatg agcggtgtga aagttgt	27
<210> 15	
<211> 27	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Reverse primer	
<400> 15	
atgggcgtgt acatagtgca taggaag	27
<210> 16	
<211> 28	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Reverse primer	
<400> 16	
tttctcataa agtttacgac aaggtgga	28
<210> 17	
<211> 20 <212> DNA	
<213> Artificial Sequence	
value in official bequence	
<220>	
<223> Reverse primer	
<400> 17	
cgcggtaggg taggcagtgg	20
<210> 18	
<211> 25	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Reverse primer	
<400> 18	
actcagactt cctggctctc aggtg	25
<210> 19	
<211> 27	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Reverse primer	

<400> 19 ggctcttctc cacgtactgg aacttct	27
<210> 20 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Reverse primer	
<400> 20 gtccttcagc gggtgctcct	20
<210> 21 <211> 24 <212> DNA <213> Artificial Sequence	
<220> <223> FZD2 primer (reverse)	
<400> 21 cagegtettg ecegaceaga teca	24
<210> 22 <211> 24 <212> DNA <213> Artificial Sequence	
<220> <223> FZD2 primer (forward)	
<400> 22 ctagcgccgc tcttcgtgta cctg	24
<210> 23 <211> 21 <212> DNA <213> Artificial Sequence	
<220> <223> FZD 5 primer (forward)	
<400> 23 ttcatgtgcc tggtggtggg c	21
<210> 24 <211> 21 <212> DNA <213> Artificial Sequence	
<220> <223> FZD5 primer (reverse)	
<400> 24	

tacacgtgcg acagggacac c	21
<210> 25 <211> 20	
<212> DNA <213> Artificial Sequence	
C2132 AICITICIAI Sequence	
<220>	
<223> G3PDH primer (forward)	
.400. 25	
<400> 25	0.0
accacagtcc atgccatcac	20
<210> 26	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220> <223> G3PDH primer (reverse)	
(223) GSPDR primer (reverse)	
<400> 26	
tacagcaaca gggtggtgga	20
<210> 27	
<211> 75	
<212> PRT	
<213> Artificial Sequence	
<220>	
<223> pFZD2-TT	
.	
<400> 27	
Met Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala Pro Ala Leu Leu	
1 5 10 15	
Thr Thr Ala Pro Pro Gly Leu Gln Pro Gly Ala Gly Gly Thr Pro	
20 25 30 Gly Gly Pro Gly Gly Gly Ala Pro Pro Arg Tyr Ala Thr Leu Glu	
35 40 45	
His Pro Phe His Cys Gly Pro Ser Leu Val Asp Asp Ala Leu Ile Asn	
50 55 60	
Ser Thr Lys Ile Tyr Ser Tyr Phe Pro Ser Val	
65 70 75	
<210> 28 <211> 228	
<211> 226 <212> DNA	
<213> Artificial Sequence	
Table Maritoral Soquence	
<220>	
<223> Coding region for pFZD2-TT	
<400> 28	
atgtgcgtcg gccagaacca ctccgaggac ggagctcccg cgctactcac caccgcgccg	60
cegeegggae tgeageeggg tgeeggggge acceegggtg geeegggegg eggeggegt eeceegggt acgeeaeget ggageaeece ttecaetgeg geeeeageet ggtggaegae	120
	180 228

```
<210> 29
<211> 75
<212> PRT
<213> Artificial Sequence
<220>
<223> pTT-FZD2
<400> 29
Met Val Asp Asp Ala Leu Ile Asn Ser Thr Lys Ile Tyr Ser Tyr Phe
Pro Ser Val Gly Pro Ser Leu Cys Val Gly Gln Asn His Ser Glu Asp
            20
Gly Ala Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro
                            40
Gly Ala Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Ala Pro Pro
                        55
Arg Tyr Ala Thr Leu Glu His Pro Phe His Cys
                    70
<210> 30
<211> 228
<212> DNA
<213> Artificial Sequence
<220>
<223> Coding region for pTT-FZD2
<400> 30
atggtggacg acgccctgat caacagcacc aagatctaca gctactttcc cagcgtgggc
                                                                        60
cccagcetgt gcgtcggcca gaaccactcc gaggacggag ctcccgcgct actcaccacc
                                                                       120
gegeegeege egggaetgea geegggtgee gggggaacee egggtggee gggeggegge
                                                                       180
ggcgctcccc cgcgctacgc cacgctggag caccccttcc actgctag
                                                                       228
<210> 31
<211> 75
<212> PRT
<213> Artificial sequence
<220>
<223> PFZD2-MMVF
Met Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala Pro Ala Leu Leu
Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala Gly Gly Thr Pro
Gly Gly Pro Gly Gly Gly Ala Pro Pro Arg Tyr Ala Thr Leu Glu
                            40
His Pro Phe His Cys Gly Pro Ser Leu Lys Leu Leu Ser Leu Ile Lys
                        55
Gly Val Ile Val His Arg Leu Glu Gly Val Glu
                    70
<210> 32
```

<211> 228

```
<212> DNA
<213> Artificial Sequence
<223> Coding region for PFZD2-MMVF
<400> 32
atgtgcgtcg gccagaacca ctccgaggac ggagctcccg cgctactcac caccgcgccg
                                                                        60
ccgccgggac tgcagccggg tgccgggggc accccgggtg gcccgggcgg cggcggct
                                                                       120
eccegeget acgccacget ggagcaccce ttecactgeg geoccageet gaagetgetg
                                                                       180
agcctgatca agggcgtgat cgtgcaccgc ctggagggcg tggagtag
                                                                       228
<210> 33
<211> 75
<212> PRT
<213> Artificial Sequence
<220>
<223> PMMVF-FZD2
<400> 33
Met Lys Leu Ser Leu Ile Lys Gly Val Ile Val His Arg Leu Glu
                                     10
Gly Val Glu Gly Pro Ser Leu Cys Val Gly Gln Asn His Ser Glu Asp
                                 25
Gly Ala Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro
Gly Ala Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Ala Pro Pro
                        55
Arg Tyr Ala Thr Leu Glu His Pro Phe His Cys
                    70
<210> 34
<211> 228
<212> DNA
<213> Artificial Sequence
<223> Coding region for PMMVF-FZD2
<400> 34
atgaagetge tgageetgat caagggegtg ategtgeace geetggaggg egtggaggge
                                                                        60
cccagcctgt gcgtcggcca gaaccactcc gaggacggag ctcccgcgct actcaccacc
                                                                       120
gegeegeege egggaetgea geegggtgee gggggeaeee egggtggee gggeggegge
                                                                       180
ggcgctcccc cgcgctacgc cacgctggag caccccttcc actgctag
                                                                       228
<210> 35
<211> 517
<212> PRT
<213> Mouse
<400> 35
Met Ala Val Ser Trp Ile Val Phe Asp Leu Trp Leu Leu Thr Val Phe
                                    10
Leu Gly Gln Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
                                25
Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn
```

```
35
                            40
Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
                        55
                                            60
Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
                    70
                                        75
Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
                85
                                    90
Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
                                105
Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
                            120
                                                125
Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn
                        135
Leu Val Gly Asp Pro Thr Glu Tyr Ser Phe Leu His Val Arg Asp Cys
                    150
Ser Pro Pro Cys Pro Asn Met Tyr Phe Arg Arg Glu Glu Leu Ser Phe
                165
                                    170
Ala Arg Tyr Phe Ile Gly Leu Ile Ser Ile Ile Cys Leu Ser Ala Thr
                                185
Leu Phe Thr Phe Leu Thr Phe Leu Ile Asp Val Thr Arg Phe Arg Tyr
                           200
                                                205
Pro Glu Arg Pro Ile Ile Phe Tyr Ala Val Cys Tyr Met Met Val Ser
                        215
Leu Ile Phe Phe Ile Gly Phe Leu Leu Glu Asp Arg Val Ala Cys Asn
                   230
                                        235
Ala Ser Ser Pro Ala Gln Tyr Lys Ala Ser Thr Val Thr Gln Gly Ser
               245
                                    250
His Asn Lys Ala Cys Thr Met Leu Phe Met Val Leu Tyr Phe Phe Thr
                                265
Met Ala Gly Ser Val Trp Trp Val Ile Leu Thr Ile Thr Trp Phe Leu
                           280
Ala Ala Val Pro Lys Trp Gly Ser Glu Ala Ile Glu Lys Lys Ala Leu
                        295
                                            300
Leu Phe His Ala Ser Ala Trp Gly Ile Pro Gly Thr Leu Thr Ile Ile
                                        315
Leu Leu Ala Met Asn Lys Ile Glu Gly Asp Asn Ile Ser Gly Val Cys
                                    330
Phe Val Gly Leu Tyr Asp Val Asp Ala Leu Arg Tyr Phe Val Leu Ala
Pro Leu Cys Leu Tyr Val Val Val Gly Val Ser Leu Leu Leu Ala Gly
Ile Ile Ser Leu Asn Arg Val Arg Ile Glu Ile Pro Leu Glu Lys Glu
                        375
Asn Gln Asp Lys Leu Val Lys Phe Met Ile Arg Ile Gly Val Phe Ser
                    390
                                        395
Ile Leu Tyr Leu Val Pro Leu Leu Val Val Ile Gly Cys Tyr Phe Tyr
                                    410
Glu Gln Ala Tyr Arg Gly Ile Trp Glu Thr Thr Trp Ile Gln Glu Arg
                                425
Cys Arg Glu Tyr His Ile Pro Cys Pro Tyr Gln Val Thr Gln Met Ser
                            440
Arg Pro Asp Leu Ile Leu Phe Leu Met Lys Tyr Leu Met Ala Leu Ile
                       455
Val Gly Ile Pro Ser Ile Phe Trp Val Gly Ser Lys Lys Thr Cys Phe
                   470
                                        475
Glu Trp Ala Ser Phe Phe His Gly Arg Arg Lys Lys Glu Ile Val Asn
                485
                                    490
```

```
Glu Ser Arg Gln Val Leu Gln Glu Pro Asp Phe Ala Gln Ser Leu Leu
            500
                                505
Arg Asp Pro Asn Thr
       515
<210> 36
<211> 500
<212> PRT
<213> Mouse
<400> 36
Met Ala Trp Pro Gly Thr Gly Pro Ser Ser Arg Gly Ala Pro Gly Gly
Val Gly Leu Arg Leu Gly Leu Leu Gln Phe Leu Leu Leu Arg
Pro Thr Leu Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
Arg Ile Ala Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
                85
                                    90
Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
                                105
Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
                           120
Glu Pro Val Leu Arg Glu Phe Gly Phe Ala Trp Pro Asp Thr Leu Asn
                       135
Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
                   150
                                       155
Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Leu Asn
               165
                                    170
Cys Val Leu Lys Cys Gly Tyr Asp Ala Gly Leu Tyr Ser Arg Ser Ala
                               185
Lys Glu Phe Thr Asp Ile Trp Met Ala Val Trp Ala Ser Leu Cys Phe
                            200
Ile Ser Thr Thr Phe Thr Val Leu Thr Phe Leu Ile Asp Ser Ser Arg
                                            220
Phe Ser Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Met Cys Tyr Asn
                   230
Ile Tyr Ser Ile Ala Tyr Ile Val Arg Leu Thr Val Gly Arg Glu Arg
               245
                                    250
Ile Ser Cys Asp Phe Glu Glu Ala Glu Pro Val Leu Ile Gln Glu
                                265
Gly Leu Lys Asn Thr Gly Cys Ala Ile Ile Phe Leu Leu Met Tyr Phe
Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu Thr Leu Thr Trp
                       295
Phe Leu Ala Ala Gly Leu Lys Trp Gly His Glu Ala Ile Glu Met His
                                        315
Ser Ser Tyr Phe His Ile Ala Ala Trp Ala Ile Pro Ala Val Lys Thr
               325
                                    330
Ile Val Ile Leu Ile Met Arg Leu Val Asp Ala Asp Glu Leu Thr Gly
                            345
Leu Cys Tyr Val Gly Asn Gln Asn Leu Asp Ala Leu Thr Gly Phe Val
                           360
```

```
Val Ala Pro Leu Phe Thr Tyr Leu Val Ile Gly Thr Leu Phe Ile Ala
                       375
Ala Gly Leu Val Ala Leu Phe Lys Ile Arg Ser Asn Leu Gln Lys Asp
                   390
                                      395
Gly Thr Lys Thr Asp Lys Leu Glu Arg Leu Met Val Lys Ile Gly Val
               405
                                   410
Phe Ser Val Leu Tyr Thr Val Pro Ala Thr Cys Val Ile Ala Cys Tyr
           420
                               425
Phe Tyr Glu Ile Ser Asn Trp Ala Leu Phe Arg Tyr Ser Ala Asp Asp
                          440
Ser Asn Met Ala Val Glu Met Leu Lys Ile Phe Met Ser Leu Leu Val
                       455
                                          460
Gly Ile Thr Ser Gly Met Trp Ile Trp Ser Ala Lys Thr Leu His Thr
                   470
                                      475
Trp Gln Lys Cys Ser Asn Arg Leu Val Asn Ser Gly Lys Val Lys Arg
               485
                                   490
Glu Lys Arg Gly
           500
<210> 37
<211> 599
<212> PRT
<213> Mouse
<400> 37
Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
               5
Ala Val Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
                               25
Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
                        40
Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
                      55
Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
                   70
                            75
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
                           120
Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
                       135
Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
                   150
                                       155
Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Pro Gly Glu Gln
                                   170
Pro Pro Ser Gly Ser Gly His Ser Arg Pro Pro Gly Ala Arg Pro Pro
                               185
His Arg Gly Gly Ser Ser Arg Gly Ser Gly Asp Ala Ala Ala Pro
                           200
Pro Ser Arg Gly Gly Lys Thr Gly Gln Ile Ala Asn Cys Ala Leu Pro
                       215
Cys His Asn Pro Phe Phe Ser Gln Asp Glu Arg Ala Phe Thr Val Phe
                230
                                      235
Trp Ile Gly Leu Trp Ser Val Leu Cys Phe Val Ser Thr Phe Ala Thr
                                  250 255
```

```
Val Ser Thr Phe Leu Ile Asp Met Glu Arg Phe Lys Tyr Pro Glu Arg
            260
                                265
Pro Ile Ile Phe Leu Ser Ala Cys Tyr Leu Phe Val Ser Val Gly Tyr
                            280
                                               285
Leu Val Arg Leu Val Ala Gly His Glu Lys Val Ala Cys Ser Gly Gly
                       295
                                           300
Ala Pro Gly Ala Gly Gly Arg Gly Gly Ala Gly Gly Ala Ala Ala
                   310
                                       315
Gly Ala Gly Ala Gly Arg Gly Ala Ser Ser Pro Gly Ala Arg Gly
                                   330
Glu Tyr Glu Glu Leu Gly Ala Val Glu Gln His Val Arg Tyr Glu Thr
                                345
Thr Gly Pro Ala Leu Cys Thr Val Val Phe Leu Leu Val Tyr Phe Phe
                            360
Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp Phe
                       375
                                           380
Leu Ala Ala Gly Met Lys Trp Gly Asn Glu Ala Ile Ala Gly Tyr Ser
                   390
                                       395
Gln Tyr Phe His Leu Ala Ala Trp Leu Val Pro Ser Val Lys Ser Ile
               405
                                   410
Ala Val Leu Ala Leu Ser Ser Val Asp Gly Asp Pro Val Ala Gly Ile
                               425
Cys Tyr Val Gly Asn Gln Ser Leu Asp Asn Leu Arg Gly Phe Val Leu
                            440
Ala Pro Leu Val Ile Tyr Leu Phe Ile Gly Thr Met Phe Leu Leu Ala
                       455
Gly Phe Val Ser Leu Phe Arg Ile Arg Ser Val Ile Lys Gln Gln Gly
                   470
                                       475
Gly Pro Thr Lys Thr His Lys Leu Glu Lys Leu Met Ile Arg Leu Gly
               485
                                   490
Leu Phe Thr Val Leu Tyr Thr Val Pro Ala Ala Val Val Ala Cys
                               505
Leu Phe Tyr Glu Gln His Asn Arg Pro Arg Trp Glu Ala Thr His Asn
                            520
Cys Pro Cys Leu Arg Asp Leu Gln Pro Asp Gln Ala Arg Arg Pro Asp
                        535
                                           540
Tyr Ala Val Phe Met Leu Lys Tyr Phe Met Cys Leu Val Val Gly Ile
                   550
                                        555
Thr Ser Gly Val Trp Val Trp Ser Gly Lys Thr Leu Glu Ser Trp Arg
               565
                                   570
Ala Leu Cys Thr Arg Cys Cys Trp Ala Ser Lys Gly Ala Ala Val Gly
            580
                               585
Ala Gly Ala Gly Gly Ser Gly
<210> 38
<211> 516
<212> PRT
<213> Homo sapiens
<400> 38
Met Ala Arg Pro Asp Pro Ser Ala Pro Pro Ser Leu Leu Leu Leu
                                   10
Leu Ala Gln Leu Val Gly Arg Ala Ala Ala Ala Ser Lys Ala Pro Val
                               25
Cys Gln Glu Ile Thr Val Pro Met Cys Arg Gly Ile Gly Tyr Asn Leu
```

```
Thr His Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu Ala Gly
                        55
Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys Ser Pro
                    70
                                        75
Asp Leu Arg Phe Phe Leu Cys Thr Met Tyr Thr Pro Ile Cys Leu Pro
                85
                                   90
Asp Tyr His Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu Arg Ala
                                105
Lys Ala Gly Cys Ser Pro Leu Met Arg Gln Tyr Gly Phe Ala Trp Pro
                            120
Glu Arg Met Ser Cys Asp Arg Leu Pro Val Leu Gly Arg Asp Ala Glu
                        135
Val Leu Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro
                    150
                                        155
Arg Pro Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro
               165
                                    170
Ala Ser Gly Gly Arg Thr Gly Gln Val Pro Asn Cys Ala Val Pro Cys
                               185
Tyr Gln Pro Ser Phe Ser Ala Asp Glu Arg Thr Phe Ala Thr Phe Trp
                           200
Ile Gly Leu Trp Ser Val Leu Cys Phe Ile Ser Thr Ser Thr Thr Val
                       215
Ala Thr Phe Leu Ile Asp Met Asp Thr Phe Arg Tyr Pro Glu Arg Pro
                   230
Ile Ile Phe Leu Ser Ala Cys Tyr Leu Cys Val Ser Leu Gly Phe Leu
               245
                                  250
Val Arg Leu Val Val Gly His Ala Ser Val Ala Cys Ser Arg Glu His
                               265
Asn His Ile His Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Ile Val
                           280
Phe Leu Leu Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val
                        295
                                            300
Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Met Lys Trp Gly Asn
                    310
                                        315
Glu Ala Ile Ala Gly Tyr Gly Gln Tyr Phe His Leu Ala Ala Trp Leu
               325
Ile Pro Ser Val Lys Ser Ile Thr Ala Leu Ala Leu Ser Ser Val Asp
                                345
Gly Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Asn Leu Asn
                            360
Ser Leu Arg Arg Phe Val Leu Gly Pro Leu Val Leu Tyr Leu Leu Val
                        375
                                            380
Gly Thr Leu Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg
                                        395
Ser Val Ile Lys Gln Gly Gly Thr Lys Thr Asp Lys Leu Glu Lys Leu
               405
                                   410
Met Ile Arg Ile Gly Ile Phe Thr Leu Leu Tyr Thr Val Pro Ala Ser
           420
                                425
Ile Val Val Ala Cys Tyr Leu Tyr Glu Gln His Tyr Arg Glu Ser Trp
                            440
Glu Ala Ala Leu Thr Cys Ala Cys Pro Gly His Asp Thr Gly Gln Pro
                       455
                                           460
Arg Ala Lys Pro Glu Tyr Trp Val Leu Met Leu Lys Tyr Phe Met Cys
                   470
                                       475
Leu Val Val Gly Ile Thr Ser Gly Val Trp Ile Trp Ser Gly Lys Thr
               485
                                   490
Val Glu Ser Trp Arg Arg Phe Thr Ser Arg Cys Cys Cys Arg Pro Arg
```

510

Arg Gly His Lys 515 <210> 39 <211> 533 <212> PRT <213> Homo sapiens <400> 39 Met Ala Val Ala Pro Leu Arg Gly Ala Leu Leu Leu Trp Gln Leu Leu Ala Ala Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu Arg Gly Arg Gly Ala Ala Pro Cys Gln Ala Val Glu Ile Pro Met Cys Arg 40 Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His Thr 55 Ser Glm Gly Glu Ala Ala Glu Leu Ala Glu Phe Ala Pro Leu Val 75 Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu Tyr 85 90 Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys Arg 105 Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu Gln 120 Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro Thr 135 Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala Thr 150 155 Ala Gly Pro Ala Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala 165 . 170 Pro Arg Pro Ala Arg Pro Pro Gly Arg Ser Cys Ala Pro Arg Cys Gly 185 190 Pro Gly Val Glu Val Phe Trp Ser Arg Arg Asp Lys Asp Phe Ala Leu 200 Val Trp Met Ala Val Trp Ser Ala Leu Cys Phe Phe Ser Thr Ala Phe 220 Thr Val Leu Thr Phe Leu Leu Glu Pro His Arg Phe Gln Tyr Pro Glu 230 235 Arg Pro Ile Ile Phe Leu Ser Met Cys Tyr Asn Val Tyr Ser Leu Ala 245 250 Phe Leu Ile Arg Ala Val Ala Gly Ala Gln Ser Val Ala Cys Asp Gln 265 Glu Ala Gly Ala Leu Tyr Val Ile Gln Glu Gly Leu Glu Asn Thr Gly 280 Cys Thr Leu Val Phe Leu Leu Leu Tyr Tyr Phe Gly Met Ala Ser Ser 295 300 Leu Trp Trp Val Val Leu Thr Leu Thr Trp Phe Leu Ala Ala Gly Lys 310 315 Lys Trp Gly His Glu Ala Ile Glu Ala His Gly Ser Tyr Phe His Met 325 330 Ala Ala Trp Gly Leu Pro Ala Leu Lys Thr Ile Val Ile Leu Thr Leu 340 345 Arg Lys Val Ala Gly Asp Glu Leu Thr Gly Leu Cys Tyr Val Ala Ser 360 Thr Asp Ala Ala Leu Thr Gly Phe Val Leu Val Pro Leu Ser Gly

505

```
370
                       375
Tyr Leu Val Leu Gly Ser Ser Phe Leu Leu Thr Gly Phe Val Ala Leu
                    390
                                        395
Phe His Ile Arg Lys Ile Met Lys Thr Gly Gly Thr Asn Thr Glu Lys
                405
                                    410
Leu Glu Lys Leu Met Val Lys Ile Gly Val Phe Ser Ile Leu Tyr Thr
            420
                                425
Val Pro Ala Thr Cys Val Ile Val Cys Tyr Val Tyr Glu Arg Leu Asn
                            440
                                                445
Met Asp Phe Trp Arg Leu Arg Ala Thr Glu Gln Pro Cys Ala Ala Ala
                        455
                                            460
Ala Gly Pro Gly Gly Arg Arg Asp Cys Ser Leu Pro Gly Gly Ser Val
                    470
                                        475
Pro Thr Val Ala Val Phe Met Leu Lys Ile Phe Met Ser Leu Val Val
                485
                                    490
Gly Ile Thr Ser Gly Val Trp Val Trp Ser Ser Lys Thr Phe Gln Thr
            500
                                505
Trp Gln Ser Leu Cys Tyr Arg Lys Ile Ala Ala Gly Arg Ala Arg Ala
                            520
Lys Ala Cys Arg Ala
   530
<210> 40
<211> 544
<212> PRT
<213> Rat
<400> 40
Leu Glu Ala Pro Leu Leu Gly Val Arg Ala Gln Pro Ala Gly Gln
Val Ser Gly Pro Gly Gln Gln Arg Pro Pro Pro Gln Pro Gln Gln
           2.0
                                25
Gly Gly Gln Gln Tyr Asn Gly Glu Arg Gly Ile Ser Ile Pro Asp His
                            40
Gly Tyr Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr
                        55
                                            60
Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp
Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys
Ser Ala Glu Leu Lys Phe Phe Leu Cys Ser Mét Tyr Ala Pro Val Cys
                                105
Thr Val Leu Glu Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys Glu Arg
                            120
Ala Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro
                        135
Asp Thr Leu Lys Cys Glu Lys Phe Pro Val His Gly Ala Gly Glu Leu
                    150
                                        155
Cys Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr Pro Ser Leu
                                    170
Leu Pro Glu Phe Trp Thr Ser Asn Pro Gln His Gly Leu Gly Glu Lys
                                185
Asp Cys Gly Ala Pro Cys Glu Pro Thr Lys Val Tyr Gly Leu Met Tyr
                           200
Phe Gly Pro Glu Glu Leu Arg Phe Ser Arg Thr Trp Ile Gly Ile Trp
                       215
                                            220
Ser Val Leu Cys Cys Ala Ser Thr Leu Phe Thr Val Leu Thr Tyr Leu
```

```
235
Val Asp Met Arg Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile Phe Leu
               245
                                  250
Ser Gly Cys Tyr Thr Ala Val Ala Val Ala Tyr Ile Ala Gly Phe Leu
                               265
            260
Leu Glu Asp Arg Val Val Cys Asn Asp Lys Phe Ala Glu Asp Gly Ala
        275
                           280
                                                285
Arg Thr Val Ala Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu Phe
                        295
                                            300
Met Met Leu Tyr Phe Phe Ser Met Ala Ser Ser Ile Trp Trp Val Ile
                    310
                                        315
Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly His Glu
                                   330
Ala Ile Glu Ala Asn Ser Gln Tyr Phe His Leu Ala Ala Trp Ala Val
                                345
Pro Ala Ile Lys Thr Ile Thr Ile Leu Ala Leu Gly Gln Val Asp Gly
                            360
Asp Val Leu Ser Gly Val Cys Phe Val Gly Leu Asn Asn Val Asp Ala
                       375
                                            380
Leu Arg Gly Phe Val Leu Ala Pro Leu Phe Val Tyr Leu Phe Ile Gly
                   390
                                       395
Thr Ser Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Thr
               405
                                   410
Ile Met Lys His Asp Gly Thr Lys Thr Glu Lys Leu Glu Lys Leu Met
                               425
Val Arg Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala Thr Ile
                           440
Val Ile Ala Cys Tyr Phe Tyr Glu Gln Ala Phe Arg Asp Gln Trp Glu
                       455
Arg Ser Trp Val Ala Gln Ser Cys Lys Ser Tyr Ala Ile Pro Cys Pro
                   470
                                   475
His Leu Gln Gly Gly Gly Val Pro Pro His Pro Pro Met Ser Pro
                485
                                   490
Asp Phe Thr Val Phe Met Ile Lys Tyr Leu Met Thr Leu Ile Val Gly
                               505
Ile Thr Ser Gly Phe Trp Ile Trp Ser Gly Lys Thr Leu Asn Ser Trp
                            520
Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser Lys Gln Gly Glu Thr Thr
                        535
<210> 41
<211> 529
<212> PRT
<213> Rat
Met Arg Ala Arg Ser Ala Leu Pro Arg Ser Ala Leu Pro Arg Leu Leu
                                   10
Leu Pro Leu Leu Leu Pro Ala Gly Pro Ala Gln Phe His Gly
                               25
Glu Lys Gly Ile Ser Ile Pro Asp His Gly Phe Cys Gln Pro Ile Ser
                           40
Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln Thr Ile Met Pro Asn
                       55
Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln
                   70
                                       75
Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro Glu Leu Arg Phe Phe
```

230

```
85
                                    90
Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val Leu Glu Gln Ala Ile
           100
                                105
Pro Pro Cys Arg Ser Ile Cys Glu Arg Ala Arg Gln Gly Cys Glu Ala
        115
                            120
                                                125
Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu Arg Leu Arg Cys Glu
                        135
                                            140
His Phe Pro Arg His Gly Ala Glu Gln Ile Cys Val Gly Gln Asn His
                    150
                                        155
Ser Glu Asp Gly Thr Pro Ala Leu Leu Thr Thr Ala Pro Pro Ser Gly
                165
                                    170
Leu Gln Pro Gly Leu Gly Glu Arg Asp Cys Ala Ala Pro Cys Glu Pro
                                185
                                                    190
Ala Arg Pro Asp Gly Ser Met Phe Phe Ser His His His Thr Arg Phe
                            200
                                                205
Ala Arg Leu Trp Ile Leu Thr Trp Ser Val Leu Cys Cys Ala Ser Thr
                        215
Phe Phe Thr Val Thr Thr Ser Leu Val Ala Met Gln Arg Phe Arg Tyr
                    230
                                        235
Pro Glu Arg Pro Ile Ile Phe Leu Ser Gly Cys Tyr Thr Met Val Ser
                                   250
                245
Val Ala Tyr Ile Ala Gly Phe Val Leu Gln Glu Arg Val Val Cys Asn
                                265
Glu Arg Phe Ser Glu Asp Gly Tyr Arg Thr Val Gly Gln Gly Thr Lys
                           280
Lys Glu Gly Cys Thr Ile Leu Phe Met Met Leu Tyr Phe Phe Ser Met
                        295
Ala Ser Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp Phe Leu Ala
                   310
                                       315
Ala Gly Met Lys Trp Gly His Ala Ala Ile Glu Ala Asn Ser Gln Tyr
               325
                                   330
Phe His Leu Ala Ala Trp Ala Val Pro Ala Val Lys Thr Ile Thr Ile
                               345
Leu Ala Met Gly Gln Ile Asp Gly Asp Leu Leu Ser Gly Val Cys Phe
                            360
                                                365
Val Gly Leu Asn Arg Leu Asp Pro Leu Arg Gly Phe Val Leu Ala Pro
                        375
Leu Phe Val Tyr Leu Phe Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe
                                        395
Val Ser Leu Phe Arg Ile Arg Thr Ile Met Lys His Asp Gly Thr Lys
                405
Thr Glu Pro Leu Glu Arg Leu Met Val Arg Ile Gly Val Phe Ser Val
                                425
Leu Tyr Thr Val Pro Ala Thr Ile Val Ile Ala Cys Tyr Phe Tyr Glu
                            440
Gln Ala Phe Arg Glu His Trp Glu Arg Ser Trp Val Ser Gln His Cys
                        455
                                            460
Lys Ser Leu Ala Ile Pro Cys Pro Ala His Tyr Thr Pro Arg Thr Ser
                    470
                                        475
Pro Asp Phe Thr Val Tyr Met Ile Lys Tyr Leu Met Thr Leu Ile Val
                                    490
Gly Ile Thr Ser Gly Phe Trp Ile Trp Ser Gly Lys Thr Leu His Ser
           500
                                505
Trp Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser Arg His Gly Glu Thr
                            520
Thr
```

```
<210> 42
<211> 536
<212> PRT
<213> Drosophila
<400> 42
Ile Leu Pro Thr Leu Ile Gln Gly Val Gln Arg Tyr Asp Gln Ser Pro
                                    10
Leu Asp Ala Ser Pro Tyr Tyr Arg Ser Gly Gly Leu Met Ala Ser
                                25
Ser Gly Thr Glu Leu Asp Gly Leu Pro His His Asn Arg Cys Glu Pro
Ile Thr Ile Ser Ile Cys Lys Asn Ile Pro Tyr Asn Met Thr Ile Met
Pro Asn Leu Ile Gly His Thr Lys Gln Glu Glu Ala Gly Leu Glu Val
His Gln Phe Ala Pro Leu Val Lys Ile Gly Cys Ser Asp Asp Leu Gln
                                    90
Leu Phe Leu Cys Ser Leu Tyr Val Pro Val Cys Thr Ile Leu Glu Arg
                                105
Pro Ile Pro Pro Cys Arg Ser Leu Cys Glu Ser Ala Arg Val Cys Glu
                           120
Lys Leu Met Lys Thr Tyr Asn Phe Asn Trp Pro Glu Asn Leu Glu Cys
                        135
Ser Lys Phe Pro Val His Gly Gly Glu Asp Leu Cys Val Ala Glu Asn
                   150
                                       155
Thr Thr Ser Ser Ala Ser Thr Ala Ala Thr Pro Thr Arg Ser Val Ala
               165
                                   170
Val Gly Gly Lys Asp Leu His Asp Cys Gly Ala Pro Cys His Ala Met
                               185
Phe Phe Pro Glu Arg Glu Arg Thr Val Leu Arg Tyr Trp Val Gly Ser
                            200
                                                205
Trp Ala Ala Val Cys Val Ala Ser Cys Leu Phe Thr Val Leu Thr Phe
                        215
                                            220
Leu Ile Asp Ser Ser Arg Phe Arg Tyr Pro Glu Arg Ala Ile Val Phe
                    230
                                        235
Leu Ala Val Cys Tyr Leu Val Val Gly Cys Ala Tyr Val Ala Gly Leu
Gly Ala Gly Asp Ser Val Ser Cys Arg Glu Pro Phe Pro Pro Pal
                                265
                                                    270
Lys Leu Gly Arg Leu Gln Met Met Ser Thr Ile Thr Gln Gly His Arg
                            280
Gln Thr Thr Ser Cys Thr Val Leu Phe Met Ala Leu Tyr Phe Cys Cys
                        295
Met Ala Ala Phe Ala Trp Trp Ser Cys Leu Ala Phe Ala Trp Phe Leu
                    310
                                        315
Ala Ala Gly Leu Lys Trp Gly His Glu Ala Ile Glu Asn Lys Ser His
                                    330
Leu Phe His Leu Val Ala Trp Ala Val Pro Ala Leu Gln Thr Ile Ser
            340
                                345
Val Leu Ala Leu Ala Lys Val Glu Gly Asp Ile Leu Ser Gly Val Cys
                           360
Phe Val Gly Gln Leu Asp Thr His Ser Leu Gly Ala Phe Leu Ile Leu
                       375
                                          380
Pro Leu Cys Ile Tyr Leu Ser Ile Gly Ala Leu Phe Leu Leu Ala Gly
                    390
                                        395
```

```
Phe Ile Ser Leu Phe Arg Ile Arg Thr Val Met Lys Thr Asp Gly Lys
                405
                                   410
Arg Thr Asp Lys Leu Glu Arg Leu Met Leu Arg Ile Gly Phe Phe Ser
                                425
Gly Leu Phe Ile Leu Pro Ala Val Gly Leu Leu Gly Cys Leu Phe Tyr
                           440
                                                445
Glu Tyr Tyr Asn Phe Asp Glu Trp Met Ile Gln Trp His Arg Asp Ile
                        455
                                           460
Cys Lys Pro Phe Ser Ile Pro Cys Pro Ala Ala Arg Ala Pro Gly Ser
                    470
                                       475
Pro Glu Ala Arg Pro Ile Phe Gln Ile Phe Met Val Lys Tyr Leu Cys
               485
                                    490
Ser Met Leu Val Gly Val Thr Ser Ser Val Trp Leu Tyr Ser Ser Lys
                            505
Thr Met Val Ser Trp Arg Asn Phe Val Glu Arg Leu Gln Gly Lys Glu
                           520
Pro Arg Thr Arg Ala Gln Ala Tyr
<210> 43
<211> 570
<212> PRT
<213> Drosophila
<400> 43
Gly Leu Val Leu Leu Thr Ser Cys Arg Ala Asp Gly Pro Leu His
               - 5
                                  10
Ser Ala Asp His Gly Met Gly Gly Met Gly Gly His Gly Leu
Asp Ala Ser Pro Ala Pro Gly Tyr Gly Val Pro Ala Ile Pro Lys Asp
                            40
Pro Asn Leu Arg Cys Glu Glu Ile Thr Ile Pro Met Cys Arg Gly Ile
Gly Tyr Asn Met Thr Ser Phe Pro Asn Glu Met Asn His Glu Thr Gln
Asp Glu Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile
                85
                                   90
Lys Cys Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro
                               105
Ile Cys Leu Glu Asp Tyr His Lys Pro Leu Pro Val Cys Arg Ser Val
                           120
                                                125
Cys Glu Arg Ala Arg Ser Gly Cys Ala Pro Ile Met Gln Gln Tyr Ser
                       135
Phe Glu Trp Pro Glu Arg Met Ala Cys Glu His Leu Pro Leu His Gly
                                       155
Asp Pro Asp Asn Leu Cys Met Glu Gln Pro Ser Tyr Thr Glu Ala Gly
               165
Ser Gly Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Ser Gly
           .180
                               185
Ser Gly Gly Lys Arg Lys Gln Gly Gly Ser Gly Ser Gly Gly Ser Gly
       195
                           200
                                               205
Ala Gly Gly Ser Ser Gly Ser Thr Ser Thr Lys Pro Cys Arg Gly Arg
                       215
                                           220
Gln Arg Ile Ala Gly Val Pro Asn Cys Gly Ile Pro Cys Lys Gly Pro
                   230
                                       235
Phe Phe Ser Asn Asp Glu Lys Asp Phe Ala Gly Leu Trp Ile Ala Leu
               245
                                   250
```

```
Trp Ser Gly Leu Cys Phe Cys Ser Thr Leu Met Thr Leu Thr Thr Phe
            260
                                265
Ile Ile Asp Thr Glu Arg Phe Lys Tyr Pro Glu Arg Pro Ile Val Phe
       275
                           280
                                         285
Leu Ser Ala Cys Tyr Phe Met Val Ala Val Gly Tyr Leu Ser Arg Asn
                       295
                                           300
Phe Leu Gln Asn Glu Glu Ile Ala Cys Asp Gly Leu Leu Arg Glu
                   310
                                       315
Ser Ser Thr Gly Pro His Ser Cys Thr Leu Val Phe Leu Leu Thr Tyr
               325
                                   330
Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu Thr Phe Thr
                               345
Trp Phe Leu Ala Ala Gly Leu Lys Trp Gly Asn Glu Ala Ile Thr Lys
                           360
                                               365
His Ser Gln Tyr Phe His Leu Ala Ala Trp Leu Ile Pro Thr Val Gln
                       375
Ser Val Ala Val Leu Leu Ser Ala Val Asp Gly Asp Pro Ile Leu
                   390
                                        395
Gly Ile Cys Tyr Val Gly Asn Leu Asn Pro Asp His Leu Lys Thr Phe
               405
                                    410
Val Leu Ala Pro Leu Phe Val Tyr Leu Val Ile Gly Thr Thr Phe Leu
           420
                               425
                                                    430
Met Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser Val Ile Lys Gln
                           440
Gln Gly Gly Val Gly Ala Gly Val Lys Ala Asp Lys Leu Glu Lys Leu
                       455
                                           460
Met Ile Arg Ile Gly Ile Phe Ser Val Leu Tyr Thr Val Pro Ala Thr
                   470
                                       475
Ile Val Ile Gly Cys Tyr Leu Tyr Glu Ala Ala Tyr Phe Glu Asp Trp
               485
                                   490
Ile Lys Ala Leu Ala Cys Pro Cys Ala Gln Val Lys Gly Pro Gly Lys
                               505
Lys Pro Leu Tyr Ser Val Leu Met Leu Lys Tyr Phe Met Ala Leu Ala
                           520
                                               525
Val Gly Ile Thr Ser Gly Val Trp Ile Trp Ser Gly Lys Thr Leu Glu
                       535
                                           540
Ser Trp Arg Arg Phe Trp Arg Arg Leu Leu Gly Ala Pro Asp Arg Thr
                   550
                                       555
Gly Ala Asn Gln Ala Leu Ile Lys Gln Arg
               565
<210> 44
```

<211> 647

<212> PRT

<213> Homo sapiens

<400> 44

 Met
 Ala
 Glu
 Glu
 Ala
 Pro
 Lys
 Ser
 Arg
 Ala
 Ala
 Gly
 Gly
 Ala
 Ala
 Leu
 Ser
 Ala
 Ala
 Gly
 Ala
 Leu
 Ser
 Ala
 Arg
 Leu
 Ser
 Ala
 Arg
 Ala
 Leu
 Ser
 Ala
 Arg
 Leu
 Gly
 Arg
 Ala
 Gly
 Ala
 Gln
 Ala
 Ala
 Ala
 Gly
 Arg
 Ala
 Ala
 Gly
 Ala
 A

```
Gln Gly Pro Gly Pro Gly Gln Gln Pro Pro Pro Pro Gln Gln Gln
                85
                                    90
Gln Ser Gly Gln Gln Tyr Asn Gly Glu Arg Gly Ile Ser Val Pro Asp
            100
                              105
His Gly Tyr Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala
                           120
                                               125
Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr Asn Gln Glu
                       135
                                            140
Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln
                   150
                                        155
Cys Ser Ala Glu Leu Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro Val
                165
                                    170
Cys Thr Val Leu Glu Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys Glu
                                185
Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln
                            200
Trp Pro Asp Thr Leu Lys Cys Glu Lys Phe Pro Val His Gly Ala Gly
                        215
                                            220
Glu Leu Cys Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr Pro
                    230
                                        235
Ser Leu Leu Pro Glu Phe Trp Thr Ser Asn Pro Gln His Gly Gly Gly
                245
                                    250
Gly His Arg Gly Gly Phe Pro Gly Gly Ala Gly Ala Ser Glu Arg Gly
                               265
Lys Phe Ser Cys Pro Arg Ala Leu Lys Val Pro Ser Tyr Leu Asn Tyr
                           280
His Phe Leu Gly Glu Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr Lys
                        295
Val Tyr Gly Leu Met Tyr Phe Gly Pro Glu Glu Leu Arg Phe Ser'Arg
                    310
                                       315
Thr Trp Ile Gly Ile Trp Ser Val Leu Cys Cys Ala Ser Thr Leu Phe
                325
                                   330
Thr Val Leu Thr Tyr Leu Val Asp Met Arg Arg Phe Ser Tyr Pro Glu
                                345
Arg Pro Ile Ile Phe Leu Ser Gly Cys Tyr Thr Ala Val Ala Val Ala
                            360
Tyr Ile Ala Gly Phe Leu Leu Glu Asp Arg Val Val Cys Asn Asp Lys
Phe Ala Glu Asp Gly Ala Arg Thr Val Ala Gln Gly Thr Lys Lys Glu
                    390
Gly Cys Thr Ile Leu Phe Met Met Leu Tyr Phe Phe Ser Met Ala Ser
                405
                                    410
Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly
                                425
Met Lys Trp Gly His Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe His
                            440
                                                445
Leu Ala Ala Trp Ala Val Pro Ala Ile Lys Thr Ile Thr Ile Leu Ala
                        455
                                            460
Leu Gly Gln Val Asp Gly Asp Val Leu Ser Gly Val Cys Phe Val Gly
                    470
                                        475
Leu Asn Asn Val Asp Ala Leu Arg Gly Phe Val Leu Ala Pro Leu Phe
                485
                                   490
Val Tyr Leu Phe Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe Val Ser
                                505
Leu Phe Arg Ile Arg Thr Ile Met Lys His Asp Gly Thr Lys Thr Glu
                           520
                                                525
Lys Leu Glu Lys Leu Met Val Arg Ile Gly Val Phe Ser Val Leu Tyr
```

```
530
                       535
Thr Val Pro Ala Thr Ile Val Ile Ala Cys Tyr Phe Tyr Glu Gln Ala
        550
                                      555
Phe Arg Asp Gln Trp Glu Arg Ser Trp Val Ala Gln Ser Cys Lys Ser
               565
                                  570
Tyr Ala Ile Pro Cys Pro His Leu Gln Ala Gly Gly Gly Ala Pro Pro
                              585 .
                                                  590
His Pro Pro Met Ser Pro Asp Phe Thr Val Phe Met Ile Lys Tyr Leu
                          600
                                    605
Met Thr Leu Ile Val Gly Ile Thr Ser Gly Phe Trp Ile Trp Ser Gly
                       615
                                          620
Lys Thr Leu Asn Ser Trp Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser
                   630
                                     635
Lys Gln Gly Glu Thr Thr Val
<210> 45
<211> 626
<212> PRT
<213> Mouse
<400> 45
Met Ala Glu Glu Ala Ala Pro Ser Glu Ser Arg Ala Ala Gly Arg Leu
                                   10
Ser Leu Glu Leu Cys Ala Glu Ala Leu Pro Gly Arg Arg Glu Glu Val
Gly His Glu Asp Thr Ala Ser His Arg Arg Pro Arg Ala Asp Pro Arg
Arg Trp Ala Ser Gly Leu Leu Leu Leu Trp Leu Leu Glu Ala Pro
                      55
Leu Leu Gly Val Arg Ala Gln Ala Gly Gln Val Ser Gly Pro
                  70
                                      75
Gly Gln Gln Ala Pro Pro Pro Gln Pro Gln Gln Ser Gly Gln Gln
                                  90
               85
Tyr Asn Gly Glu Arg Gly Ile Ser Ile Pro Asp His Gly Tyr Cys Gln
                               1.05
                                                  110
Pro Ile Ser Ile Pro Leu Cys Thr Asp Met Ala Tyr Asn Gln Thr Ile
                           120
Met Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly Leu Glu
Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Ala Glu Leu
                   150
Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val Leu Glu
               165
                                   170
Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg Gln Gly
                               185
Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Asp Thr Leu
                           200
Lys Cys Glu Lys Phe Pro Val His Gly Ala Gly Glu Leu Cys Val Gly
                       215
                                           220
Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr Pro Ser Leu Leu Pro Glu
                   230
                                       235
Phe Trp Thr Ser Asn Gly Gln His Gly Gly Gly Tyr Arg Gly Gly
              245
                                   250
Tyr Pro Gly Gly Ala Gly Thr Val Glu Arg Gly Lys Phe Ser Cys Pro
                              265
Arg Ala Leu Arg Val Pro Ser Tyr Leu Asn Tyr His Phe Leu Gly Glu
```

```
275
                            280
Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr Lys Val Tyr Gly Leu Met
                       295
                                            300
Tyr Phe Gly Pro Glu Glu Leu Arg Phe Ser Arg Thr Trp Ile Gly Ile
                   310
                                        315
Trp Ser Val Leu Cys Cys Ala Ser Thr Leu Phe Thr Val Leu Thr Tyr
                325
                                    330
Leu Val Asp Met Pro Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile Ser
            340
                                345
Leu Ser Gly Cys Tyr Thr Ala Val Ala Val Ala Tyr Ile Ala Gly Phe
        355
                            360
Leu Leu Glu Asp Arg Val Val Cys Asn Asp Lys Phe Ala Glu Asp Gly
                        375
                                            380
Ala Arg Thr Val Ala Gln Gly Thr Asn Lys Glu Gly Cys Thr Ile Leu
                    390
                                        395
Phe Met Met Leu Tyr Phe Phe Ser Met Ala Ser Ser Ile Trp Trp Val
                                    410
Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly His
            420
                                425
Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe His Leu Ala Ala Trp Ala
                            440
Val Pro Ala Ile Lys Thr Ile Thr Ile Leu Ala Leu Gly Gln Val Asp
                        455
Gly Asp Val Leu Ser Gly Val Cys Phe Leu Gly Leu Asn Asn Val Asp
                    470
                                        475
Ala Leu Arg Gly Phe Val Leu Ala Pro Leu Phe Val Tyr Leu Phe Ile
                485
                                    490
Gly Thr Ser Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg
                                505
Thr Ile Met Lys His Asp Gly Thr Lys Thr Glu Lys Leu Glu Lys Leu
                            520
Met Val Arg Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala Thr
                        535
                                            540
Ile Val Ile Ala Cys Tyr Phe Tyr Glu Gln Ala Phe Arg Asp Gln Trp
                    550
                                        555
Glu Arg Ser Trp Val Ala Gln Ser Cys Lys Ser Tyr Ala Ile Pro Cys
                565
                                    570
Pro His Leu Gln Gly Gly Gly Val Pro Pro His Pro Pro Met Ser
                                585
Pro Asp Phe Thr Val Phe Met Ile Lys Tyr Leu Met Thr Leu Asn Ser
Trp Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser Lys Gln Gly Glu Thr
                        615
Thr Val
625
<210> 46
<211> 565
<212> PRT
<213> Homo sapiens
Met Arg Pro Arg Ser Ala Leu Pro Arg Leu Leu Leu Leu Leu Leu
Leu Pro Ala Ala Gly Pro Ala Gln Phe His Gly Glu Lys Gly Ile Ser
                                25
Ile Pro Asp His Gly Phe Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr
```

```
35
                            40
Asp Ile Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr
                       55
                                            60
Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val
                    70
                                        75
Lys Val Gln Cys Ser Pro Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr
                85
                                    90
Ala Pro Val Cys Thr Val Leu Glu Gln Ala Ile Pro Pro Cys Arg Ser
                                105
Ile Cys Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe
                            120
                                                125
Gly Phe Gln Trp Pro Glu Arg Leu Arg Cys Glu His Phe Pro Arg His
                        135
                                            140
Gly Ala Glu Gln Ile Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala
                                        155
Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala
                165
                                    170
Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Ala Pro Pro Arg Tyr
                                185
Ala Thr Leu Glu His Pro Phe His Cys Pro Arg Val Leu Lys Val Pro
                            200
Ser Tyr Leu Ser Tyr Lys Phe Leu Gly Glu Arg Asp Cys Ala Ala Pro
                        215
                                            220
Cys Glu Pro Ala Arg Pro Asp Gly Ser Met Phe Phe Ser Gln Glu Glu
                   230
                                        235
Thr Arg Phe Ala Arg Leu Trp Ile Leu Thr Trp Ser Val Leu Cys Cys
                                   250
Ala Ser Thr Phe Phe Thr Val Thr Thr Tyr Leu Val Asp Met Gln Arg
           260
                               265
Phe Arg Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Gly Cys Tyr Thr
        275
                           280
                                               285
Met Val Ser Val Ala Tyr Ile Ala Gly Phe Val Leu Gln Glu Arg Val
                        295
                                            300
Val Cys Asn Glu Arg Phe Ser Glu Asp Gly Tyr Arg Thr Val Val Gln
                    310
                                        315
Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu Phe Met Met Leu Tyr Phe
                325
                                    330
Phe Ser Met Ala Ser Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp
                                345
Phe Leu Ala Ala Gly Met Lys Trp Gly His Glu Ala Ile Glu Ala Asn
                            360
Ser Gln Tyr Phe His Leu Ala Ala Trp Ala Val Pro Ala Val Lys Thr
                        375
                                            380
Ile Thr Ile Leu Ala Met Gly Gln Ile Asp Gly Asp Leu Leu Ser Gly
                                        395
Val Cys Phe Val Gly Leu Asn Ser Leu Asp Pro Leu Arg Gly Phe Val
                405
                                    410
Leu Ala Pro Leu Phe Val Tyr Leu Phe Ile Gly Thr Ser Phe Leu Leu
                                425
Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Thr Ile Met Lys His Asp
                            440
Gly Thr Lys Thr Glu Lys Leu Glu Arg Leu Met Val Arg Ile Gly Val
                       455
Phe Ser Val Leu Tyr Thr Val Pro Ala Thr Ile Val Ile Ala Cys Tyr
                   470
                                        475
Phe Tyr Glu Gln Ala Phe Arg Glu His Trp Glu Arg Ser Trp Val Ser
                485
                                    490
```

```
Gln His Cys Lys Ser Leu Ala Ile Pro Cys Pro Ala His Tyr Thr Pro
            500
                                505
Arg Met Ser Pro Asp Phe Thr Val Tyr Met Ile Lys Tyr Leu Met Thr
       515
                          520
                                               525
Leu Ile Val Gly Ile Thr Ser Gly Phe Trp Ile Trp Ser Gly Lys Thr
                        535
                                           540
Leu His Ser Trp Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser Arg His
                                        555
Gly Glu Thr Thr Val
<210> 47
<211> 666
<212> PRT
<213> Homo sapiens
<400> 47
Met Ala Met Thr Trp Ile Val Phe Ser Leu Trp Pro Leu Thr Val Phe
Met Gly His Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn
                           40
Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
                        55
Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
                    70
Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
                                  90
                85
Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
                               105
Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
                            120
                                               125
Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn
                        135
                                            140
Leu Ala Gly Glu Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp
                                        155
Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly
                                    170
Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met
                                185
Tyr Phe Arg Arg Glu Glu Leu Ser Phe Ala Arg Tyr Phe Ile Gly Leu
                            200
                                                205
Ile Ser Ile Ile Cys Leu Ser Ala Thr Leu Phe Thr Phe Leu Thr Phe
                        215
                                            220
Leu Ile Asp Val Thr Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Phe
                                        235
Tyr Ala Val Cys Tyr Met Met Val Ser Leu Ile Phe Phe Ile Gly Phe
               245
                                    250
Leu Leu Glu Asp Arg Val Ala Cys Asn Ala Ser Ile Pro Ala Gln Tyr
                               265
Lys Ala Ser Thr Val Thr Gln Gly Ser His Asn Lys Ala Cys Thr Met
                           280
Leu Phe Met Ile Leu Tyr Phe Phe Thr Met Ala Gly Ser Val Trp Trp
                       295
                                           300
Val Ile Leu Thr Ile Thr Trp Phe Leu Ala Ala Val Pro Lys Trp Gly
                   310
                                        315
```

```
Ser Glu Ala Ile Glu Lys Lys Ala Leu Leu Phe His Ala Ser Ala Trp
                325
                                    330
Gly Ile Pro Gly Thr Leu Thr Ile Ile Leu Leu Ala Met Asn Lys Ile
            340
                               345
Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Val
                            360
Asp Ala Leu Arg Tyr Phe Val Leu Ala Pro Leu Cys Leu Tyr Val Val
                        375
                                           380
Val Gly Val Ser Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn Arg Val
                    390
                                        395
Arg Ile Glu Ile Pro Leu Glu Lys Glu Asn Gln Asp Lys Leu Val Lys
                405
                                   410
Phe Met Ile Arg Ile Gly Val Phe Ser Ile Leu Tyr Leu Val Pro Leu
                                425
Leu Val Val Ile Gly Cys Tyr Phe Tyr Glu Gln Ala Tyr Arg Gly Ile
        435
                            440
Trp Glu Thr Trp Ile Gln Glu Arg Cys Arg Glu Tyr His Ile Pro
                        455
                                            460
Cys Pro Tyr Gln Val Thr Gln Met Ser Arg Pro Asp Leu Ile Leu Phe
                    470
                                        475
Leu Met Lys Tyr Leu Met Ala Leu Ile Val Gly Ile Pro Ser Val Phe
               485
                                    490
Trp Val Gly Ser Lys Lys Thr Cys Phe Glu Trp Ala Ser Phe Phe His
                               505
Gly Arg Arg Lys Lys Glu Ile Val Asn Glu Ser Arg Gln Val Leu Gln
                            520
Glu Pro Asp Phe Ala Gln Ser Leu Leu Arg Asp Pro Asn Thr Pro Ile
                       535
Ile Arg Lys Ser Arg Gly Thr Ser Thr Gln Gly Thr Ser Thr His Ala
                   550
                                       555
Ser Ser Thr Gln Leu Ala Met Val Asp Asp Gln Arg Ser Lys Ala Gly
                565
                                   570
Ser Ile His Ser Lys Val Ser Ser Tyr His Gly Ser Leu His Arg Ser
                                585
Arg Asp Gly Arg Tyr Thr Pro Cys Ser Tyr Arg Gly Met Glu Glu Arg
                            600
Leu Pro His Gly Ser Met Ser Arg Leu Thr Asp His Ser Arg His Ser
                        615
                                            620
Ser Ser His Arg Leu Asn Glu Gln Ser Arg His Ser Ser Ile Arg Asp
                    630
                                        635
Leu Ser Asn Asn Pro Met Thr His Ile Thr His Gly Thr Ser Met Asn
                645
                                    650
Arg Val Ile Glu Glu Asp Gly Thr Ser Ala
<210> 48
<211> 666
<212> PRT
<213> Mouse
<400> 48
Met Ala Val Ser Trp Ile Val Phe Asp Leu Trp Leu Leu Thr Val Phe
                5
Leu Gly Gln Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
```

25 Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn

```
Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
                        55
Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
                    70
                                        75
Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
                85
                                   90
Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
                                105
Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
                            120
Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn
                        135
Leu Val Gly Asp Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp
                    150
                                        1.55
Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly
                165
                                    170
Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met
            180
                                185
Tyr Phe Arg Arg Glu Glu Leu Ser Phe Ala Arg Tyr Phe Ile Gly Leu
                            200
                                                205
Ile Ser Ile Ile Cys Leu Ser Ala Thr Leu Phe Thr Phe Leu Thr Phe
                        215
Leu Ile Asp Val Thr Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Phe
                   230
                                        235
Tyr Ala Val Cys Tyr Met Met Val Ser Leu Ile Phe Phe Ile Gly Phe
                245
                                   250
Leu Leu Glu Asp Arg Val Ala Cys Asn Ala Ser Ser Pro Ala Gln Tyr
            260
                               265
Lys Ala Ser Thr Val Thr Gln Gly Ser His Asn Lys Ala Cys Thr Met
                           280
Leu Phe Met Val Leu Tyr Phe Phe Thr Met Ala Gly Ser Val Trp Trp
                        295
                                            300
Val Ile Leu Thr Ile Thr Trp Phe Leu Ala Ala Val Pro Lys Trp Gly
                    310
                                    315
Ser Glu Ala Ile Glu Lys Lys Ala Leu Leu Phe His Ala Ser Ala Trp
                                    330
Gly Ile Pro Gly Thr Leu Thr Ile Ile Leu Leu Ala Met Asn Lys Ile
                                345
Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Val
                            360
Asp Ala Leu Arg Tyr Phe Val Leu Ala Pro Leu Cys Leu Tyr Val Val
                        375
                                            380
Val Gly Val Ser Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn Arg Val
                    390
                                        395
Arg Ile Glu Ile Pro Leu Glu Lys Glu Asn Gln Asp Lys Leu Val Lys
                                    410
Phe Met Ile Arg Ile Gly Val Phe Ser Ile Leu Tyr Leu Val Pro Leu
                                425
Leu Val Val Ile Gly Cys Tyr Phe Tyr Glu Gln Ala Tyr Arg Gly Ile
                            440
Trp Glu Thr Trp Ile Gln Glu Arg Cys Arg Glu Tyr His Ile Pro
                        455
Cys Pro Tyr Gln Val Thr Gln Met Ser Arg Pro Asp Leu Ile Leu Phe
                   470
                                        475
Leu Met Lys Tyr Leu Met Ala Leu Ile Val Gly Ile Pro Ser Ile Phe
                485
                                    490
Trp Val Gly Ser Lys Lys Thr Cys Phe Glu Trp Ala Ser Phe Phe His
```

```
500
                                505
Gly Arg Arg Lys Lys Glu Ile Val Asn Glu Ser Arg Gln Val Leu Gln
                           520
Glu Pro Asp Phe Ala Gln Ser Leu Leu Arg Asp Pro Asn Thr Pro Ile
                        535
                                            540
Ile Arg Lys Ser Arg Gly Thr Ser Thr Gln Gly Thr Ser Thr His Ala
                    550
                                        555
Ser Ser Thr Gln Leu Ala Met Val Asp Asp Gln Arg Ser Lys Ala Gly
                565
                                    570
Ser Val His Ser Lys Val Ser Ser Tyr His Gly Ser Leu His Arg Ser
                                585
Arg Asp Gly Arg Tyr Thr Pro Cys Ser Tyr Arg Gly Met Glu Glu Arg
                            600
Leu Pro His Gly Ser Met Ser Arg Leu Thr Asp His Ser Arg His Ser
                        615
                                            620
Ser Ser His Arg Leu Asn Glu Gln Ser Arg His Ser Ser Ile Arg Asp
                    630
                                        635
Leu Ser Asn Asn Pro Met Thr His Ile Thr His Gly Thr Ser Met Asn
               645
                                    650
Arg Val Ile Glu Glu Asp Gly Thr Ser Ala
<210> 49
<211> 537
<212> PRT
<213> Homo sapiens
<400> 49
Met Ala Trp Arg Gly Ala Gly Pro Ser Val Pro Gly Ala Pro Gly Gly
                                    10
Val Gly Leu Ser Leu Gly Leu Leu Leu Gln Leu Leu Leu Leu Gly
            2.0
                                25
Pro Ala Arg Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
                            40
                                                45
Arg Ile Ser Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
                        55
                                            60
Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
                                        75
Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
                85
Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
                                105
Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
                            120
Glu Pro Val Leu Lys Glu Phe Gly Phe Ala Trp Pro Glu Ser Leu Asn
                        135
                                            140
Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
                    150
                                        155
Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
                                    170
Pro Gly Glu Glu Cys His Ser Val Gly Thr Asn Ser Asp Gln Tyr Ile
                                185
Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
                            200
Gly Leu Tyr Ser Arg Ser Ala Lys Glu Phe Thr Asp Ile Trp Met Ala
                       215
                                            220
Val Trp Ala Ser Leu Cys Phe Ile Ser Thr Ala Phe Thr Val Leu Thr
```

```
230
                                        235
Phe Leu Ile Asp Ser Ser Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile
               245
                                   250
Phe Leu Ser Met Cys Tyr Asn Ile Tyr Ser Ile Ala Tyr Ile Val Arq
            260
                                265
Leu Thr Val Gly Arg Glu Arg Ile Ser Cys Asp Phe Glu Glu Ala Ala
                            280
                                                285
Glu Pro Val Leu Ile Gln Glu Gly Leu Lys Asn Thr Gly Cys Ala Ile
                        295
                                           300
Ile Phe Leu Leu Met Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp
                    310
                                        315
Val Ile Leu Thr Leu Thr Trp Phe Leu Ala Ala Gly Leu Lys Trp Gly
                325
                                    330
His Glu Ala Ile Glu Met His Ser Ser Tyr Phe His Ile Ala Ala Trp
                                345
Ala Ile Pro Ala Val Lys Thr Ile Val Ile Leu Ile Met Arg Leu Val
Asp Ala Asp Glu Leu Thr Gly Leu Cys Tyr Val Gly Asn Gln Asn Leu
                        375
Asp Ala Leu Thr Gly Phe Val Val Ala Pro Leu Phe Thr Tyr Leu Val
                    390
                                        395
Ile Gly Thr Leu Phe Ile Ala Ala Gly Leu Val Ala Leu Phe Lys Ile
                405
                                    410
Arg Ser Asn Leu Gln Lys Asp Gly Thr Lys Thr Asp Lys Leu Glu Arg
                                425
Leu Met Val Lys Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala
                            440
Thr Cys Val Ile Ala Cys Tyr Phe Tyr Glu Ile Ser Asn Trp Ala Leu
                       455
Phe Arg Tyr Ser Ala Asp Asp Ser Asn Met Ala Val Glu Met Leu Lys
                   470
                                        475
Ile Phe Met Ser Leu Leu Val Gly Ile Thr Ser Gly Met Trp Ile Trp
                485
                                    490
Ser Ala Lys Thr Leu His Thr Trp Gln Lys Cys Ser Asn Arg Leu Val
                                505
Asn Ser Gly Lys Val Lys Arg Glu Lys Arg Gly Asn Gly Trp Val Lys
                            520
Pro Gly Lys Gly Ser Glu Thr Val Val
<210> 50
<211> 537
<212> PRT
<213> Mouse
<400> 50
Met Ala Trp Pro Gly Thr Gly Pro Ser Ser Arg Gly Ala Pro Gly Gly
                                    10
Val Gly Leu Arg Leu Gly Leu Leu Leu Gln Phe Leu Leu Leu Arg
                                25
Pro Thr Leu Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
Arg Ile Ala Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
                        55
Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
                    70
                                        75
Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
```

```
85
                                    90
Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
           100
                               105
Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arq Arq Cys
                            120
                                                125
Glu Pro Val Leu Arg Glu Phe Gly Phe Ala Trp Pro Asp Thr Leu Asn
                        135
                                            140
Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
                   150
                                        155
Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
                                    170
Pro Gly Glu Glu Cys His Ser Val Gly Ser Asn Ser Asp Gln Tyr Ile
                                185
Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
                            200
Gly Leu Tyr Ser Arg Ser Ala Lys Glu Phe Thr Asp Ile Trp Met Ala
                        215
                                            220
Val Trp Ala Ser Leu Cys Phe Ile Ser Thr Thr Phe Thr Val Leu Thr
                    230
                                        235
Phe Leu Ile Asp Ser Ser Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile
                                   250
               245
Phe Leu Ser Met Cys Tyr Asn Ile Tyr Ser Ile Ala Tyr Ile Val Arq
                                265
Leu Thr Val Gly Arg Glu Arg Ile Ser Cys Asp Phe Glu Glu Ala Ala
                           280
Glu Pro Val Leu Ile Gln Glu Gly Leu Lys Asn Thr Gly Cys Ala Ile
                       295
Ile Phe Leu Leu Met Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp
                  310
                                       315
Val Ile Leu Thr Leu Thr Trp Phe Leu Ala Ala Gly Leu Lys Trp Gly
               325
                                   330
His Glu Ala Ile Glu Met His Ser Ser Tyr Phe His Ile Ala Ala Trp
                                345
Ala Ile Pro Ala Val Lys Thr Ile Val Ile Leu Ile Met Arg Leu Val
                            360
Asp Ala Asp Glu Leu Thr Gly Leu Cys Tyr Val Gly Asn Gln Asn Leu
                        375
                                            380
Asp Ala Leu Thr Gly Phe Val Val Ala Pro Leu Phe Thr Tyr Leu Val
                    390
                                        395
Ile Gly Thr Leu Phe Ile Ala Ala Gly Leu Val Ala Leu Phe Lys Ile
               405
                                    410
Arg Ser Asn Leu Gln Lys Asp Gly Thr Lys Thr Asp Lys Leu Glu Arg
                                425
Leu Met Val Lys Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala
Thr Cys Val Ile Ala Cys Tyr Phe Tyr Glu Ile Ser Asn Trp Ala Leu
                        455
Phe Arg Tyr Ser Ala Asp Asp Ser Asn Met Ala Val Glu Met Leu Lys
                    470
                                        475
Ile Phe Met Ser Leu Leu Val Gly Ile Thr Ser Gly Met Trp Ile Trp
                                    490
Ser Ala Lys Thr Leu His Thr Trp Gln Lys Cys Ser Asn Arg Leu Val
                               505
Asn Ser Gly Lys Val Lys Arg Glu Lys Arg Gly Asn Gly Trp Val Lys
       515
                           520
Pro Gly Lys Gly Asn Glu Thr Val Val
   530
```

```
<211> 585
<212> PRT
<213> Homo sapiens
<400> 51
Met Ala Arg Pro Asp Pro Ser Ala Pro Pro Ser Leu Leu Leu Leu
                                    10
Leu Ala Gln Leu Val Gly Arg Ala Ala Ala Ala Ser Lys Ala Pro Val
                                25
Cys Gln Glu Ile Thr Val Pro Met Cys Arg Gly Ile Gly Tyr Asn Leu
Thr His Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu Ala Gly
Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys Ser Pro
Asp Leu Arg Phe Phe Leu Cys Thr Met Tyr Thr Pro Ile Cys Leu Pro
               85`
                                    90
Asp Tyr His Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu Arg Ala
           100
                                105
Lys Ala Gly Cys Ser Pro Leu Met Arg Gln Tyr Gly Phe Ala Trp Pro
                            120
                                                125
Glu Arg Met Ser Cys Asp Arg Leu Pro Val Leu Gly Arg Asp Ala Glu
                        135
                                            140
Val Leu Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro
                    150
Arg Pro Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro
               165
                                   170
Ala Ser Gly Gly Glu Cys Pro Ala Gly Gly Pro Phe Val Cys Lys Cys
            180
                                185
Arg Glu Pro Phe Val Pro Ile Leu Lys Glu Ser His Pro Leu Tyr Asn
       195
                            200
                                                205
Lys Val Arg Thr Gly Gln Val Pro Asn Cys Ala Val Pro Cys Tyr Gln
                        215
                                            220
Pro Ser Phe Ser Ala Asp Glu Arg Thr Phe Ala Thr Phe Trp Ile Gly
                                        235
Leu Trp Ser Val Leu Cys Phe Ile Ser Thr Ser Thr Thr Val Ala Thr
Phe Leu Ile Asp Met Asp Thr Phe Arg Tyr Pro Glu Arg Pro Ile Ile
                                265
Phe Leu Ser Ala Cys Tyr Leu Cys Val Ser Leu Gly Phe Leu Val Arg
                            280
                                                285
Leu Val Val Gly His Ala Ser Val Ala Cys Ser Arg Glu His Asn His
                        295
Ile His Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Ile Val Phe Leu
                    310
                                        315
Leu Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu
                                    330
Ser Leu Thr Trp Phe Leu Ala Ala Ala Met Lys Trp Gly Asn Glu Ala
                                345
Ile Ala Gly Tyr Gly Gln Tyr Phe His Leu Ala Ala Trp Leu Ile Pro
       355
                            360
Ser Val Lys Ser Ile Thr Ala Leu Ala Leu Ser Ser Val Asp Gly Asp
                       375
                                           380
Pro Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Asn Leu Asn Ser Leu
                                        395
```

<210> 51

```
Arg Arg Phe Val Leu Gly Pro Leu Val Leu Tyr Leu Leu Val Gly Thr
               405
                                    410
Leu Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser Val
           420
                               425
Ile Lys Gln Gly Gly Thr Lys Thr Asp Lys Leu Glu Lys Leu Met Ile
                           440
Arg Ile Gly Ile Phe Thr Leu Leu Tyr Thr Val Pro Ala Ser Ile Val
                       455
                                           460
Val Ala Cys Tyr Leu Tyr Glu Gln His Tyr Arg Glu Ser Trp Glu Ala
                   470
                                       475
Ala Leu Thr Cys Ala Cys Pro Gly His Asp Thr Gly Gln Pro Arg Ala
               485
                                    490
Lys Pro Glu Tyr Trp Val Leu Met Leu Lys Tyr Phe Met Cys Leu Val
                                505
Val Gly Ile Thr Ser Gly Val Trp Ile Trp Ser Gly Lys Thr Val Glu
                            520
Ser Trp Arg Arg Phe Thr Ser Arg Cys Cys Cys Arg Pro Arg Arg Gly
                        535
His Lys Ser Gly Gly Ala Met Ala Ala Gly Asp Tyr Pro Glu Ala Ser
                   550
                                       555
Ala Ala Leu Thr Gly Arg Thr Gly Pro Pro Gly Pro Ala Ala Thr Tyr
               565
                                    570
His Lys Gln Val Ser Leu Ser His Val
```

<210> 52

<211> 706

<212> PRT

<213> Homo sapiens

<400> 52

Met Glu Met Phe Thr Phe Leu Leu Thr Cys Ile Phe Leu Pro Leu Leu 5 10 Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys 25 Met Lys Met Ala Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His 40 45 Tyr Asp Gln Ser Ile Ala Ala Val Glu Met Glu His Phe Leu Pro Leu Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Thr Phe Leu Cys Lys Ala 70 Phe Val Pro Thr Cys Ile Glu Gln Ile His Val Val Pro Pro Cys Arg Lys Leu Cys Glu Lys Val Tyr Ser Asp Cys Lys Lys Leu Ile Asp Thr 105 Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asp Arg Leu Gln Tyr 120 125 Cys Asp Glu Thr Val Pro Val Thr Phe Asp Pro His Thr Glu Phe Leu 135 Gly Pro Gln Lys Lys Thr Glu Gln Val Gln Arg Asp Ile Gly Phe Trp 155 Cys Pro Arg His Leu Lys Thr Ser Gly Gly Gln Gly Tyr Lys Phe Leu 165 170 Gly Ile Asp Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser 185 Asp Glu Leu Glu Phe Ala Lys Ser Phe Ile Gly Thr Val Ser Ile Phe 200

```
Cys Leu Cys Ala Thr Leu Phe Thr Phe Leu Thr Phe Leu Ile Asp Val
                        215
                                            220
Arg Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Tyr Tyr Ser Val Cys
                    230
                                        235
Tyr Ser Ile Val Ser Leu Met Tyr Phe Ile Gly Phe Leu Leu Gly Asp
                245
                                    250
Ser Thr Ala Cys Asn Lys Ala Asp Glu Lys Leu Glu Leu Gly Asp Thr
                                265
Val Val Leu Gly Ser Gln Asn Lys Ala Cys Thr Val Leu Phe Met Leu
                            280
Leu Tyr Phe Phe Thr Met Ala Gly Thr Val Trp Trp Val Ile Leu Thr
                        295
Ile Thr Trp Phe Leu Ala Ala Gly Arg Lys Trp Ser Cys Glu Ala Ile
                    310
                                        315
Glu Gln Lys Ala Val Trp Phe His Ala Val Ala Trp Gly Thr Pro Gly
                325
                                    330
Phe Leu Thr Val Met Leu Leu Ala Met Asn Lys Val Glu Gly Asp Asn
                                345
Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Leu Asp Ala Ser Arg
                            360
Tyr Phe Val Leu Leu Pro Leu Cys Leu Cys Val Phe Val Gly Leu Ser
                        375
                                            380
Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn His Val Arg Gln Val Ile
                    390
                                        395
Gln His Asp Gly Arg Asn Gln Glu Lys Leu Lys Lys Phe Met Ile Arg
                405
                                   410
Ile Gly Val Phe Ser Gly Leu Tyr Leu Val Pro Leu Val Thr Leu Leu
           420
                                425
Gly Cys Tyr Val Tyr Glu Gln Val Asn Arg Ile Thr Trp Glu Ile Thr
       435
                           440
Trp Val Ser Asp His Cys Arg Gln Tyr His Ile Pro Cys Pro Tyr Gln
                        455
                                            460
Ala Lys Ala Lys Ala Arg Pro Glu Leu Ala Leu Phe Met Ile Lys Tyr
                    470
                                        475
Leu Met Thr Leu Ile Val Gly Ile Ser Ala Val Phe Trp Val Gly Ser
                                    490
Lys Lys Thr Cys Thr Glu Trp Ala Gly Phe Phe Lys Arg Asn Arg Lys
            500
                                505
Arg Asp Pro Ile Ser Glu Ser Arg Arg Val Leu Gln Glu Ser Cys Glu
                            520
Phe Phe Leu Lys His Asn Ser Lys Val Lys His Lys Lys His Tyr
                        535
Lys Pro Ser Ser His Lys Leu Lys Val Ile Ser Lys Ser Met Gly Thr
                    550
                                        555
Ser Thr Gly Ala Thr Ala Asn His Gly Thr Ser Ala Val Ala Ile Thr
                                    570
Ser His Asp Tyr Leu Gly Gln Glu Thr Leu Thr Glu Ile Gln Thr Ser
                                585
Pro Glu Thr Ser Met Arg Glu Val Lys Ala Asp Gly Ala Ser Thr Pro
                            600
Arg Leu Arg Glu Gln Asp Cys Gly Glu Pro Ala Ser Pro Ala Ala Ser
                        615
Ile Ser Arg Leu Ser Gly Glu Gln Val Asp Gly Lys Gly Gln Ala Gly
                    630
                                        635
Ser Val Ser Glu Ser Ala Arg Ser Glu Gly Arg Ile Ser Pro Lys Ser
                645
                                    650
Asp Ile Thr Asp Thr Gly Leu Ala Gln Ser Asn Asn Leu Gln Val Pro
```

```
660
                                665
Ser Ser Ser Glu Pro Ser Ser Leu Lys Gly Ser Thr Ser Leu Leu Val
                        680
                                               685
His Pro Val Ser Gly Val Arg Lys Glu Gln Gly Gly Cys His Ser
                        695
Asp Thr
705
<210> 53
<211> 709
<212> PRT
<213> Mouse
<400> 53
Met Glu Arg Ser Pro Phe Leu Leu Ala Cys Ile Leu Leu Pro Leu Val
Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
                                25
Met Lys Met Thr Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
                            40
Tyr Asp Gln Gly Ile Ala Ala Val Glu Met Gly His Phe Leu His Leu
                        55
Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Met Phe Leu Cys Gln Ala
                    70
Phe Ile Pro Thr Cys Thr Glu Gln Ile His Val Val Leu Pro Cys Arg
                85
                                    90
Lys Leu Cys Glu Lys Ile Val Ser Asp Cys Lys Lys Leu Met Asp Thr
            100
                                105
Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asn Arg Leu Pro His
                            120
                                                125
Cys Asp Asp Thr Val Pro Val Thr Ser His Pro His Thr Glu Leu Ser
                        135
                                            140
Gly Pro Gln Lys Lys Ser Asp Gln Val Pro Arg Asp Ile Gly Phe Trp
                    150
                                        155
Cys Pro Lys His Leu Arg Thr Ser Gly Asp Gln Gly Tyr Arg Phe Leu
                                    170
Gly Ile Glu Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
                                185
Asp Glu Leu Asp Phe Ala Lys Ser Phe Ile Gly Ile Val Ser Ile Phe
                            200
Cys Leu Cys Ala Thr Leu Phe Thr Phe Leu Thr Phe Leu Ile Asp Val
                        215
                                            220
Arg Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Tyr Tyr Ser Val Cys
                    230
                                        235
Tyr Ser Ile Val Ser Leu Met Tyr Phe Val Gly Phe Leu Leu Gly Asn
                245
                                    250
Ser Thr Ala Cys Asn Lys Ala Asp Glu Lys Leu Glu Leu Gly Asp Thr
                                265
                                                    270
Val Val Leu Gly Ser Lys Asn Lys Ala Cys Ser Val Val Phe Met Phe
                            280
Leu Tyr Phe Phe Thr Met Ala Gly Thr Val Trp Trp Val Ile Leu Thr
                        295
                                            300
Ile Thr Trp Phe Leu Ala Ala Gly Arg Lys Trp Ser Cys Glu Ala Ile
                    310
                                        315
Glu Gln Lys Ala Val Trp Phe His Ala Val Ala Trp Gly Ala Pro Gly
                325
                                    330
Phe Leu Thr Val Met Leu Leu Ala Met Asn Lys Val Glu Gly Asp Asn
```

```
340
                               345
Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Leu Asp Ala Ser Arg
                           360
Tyr Phe Val Leu Leu Pro Leu Cys Leu Cys Val Phe Val Gly Leu Ser
                       375
                                            380
Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn His Val Arg Gln Val Ile
                    390
                                       395
Gln His Asp Gly Arg Asn Gln Glu Lys Leu Lys Lys Phe Met Ile Arg
                405
                                   410
Ile Gly Val Phe Ser Gly Leu Tyr Leu Val Pro Leu Val Thr Leu Leu
            420
                               425
                                                430
Gly Cys Tyr Val Tyr Glu Leu Val Asn Arg Ile Thr Trp Glu Met Thr
                            440
                                                445
Trp Phe Ser Asp His Cys His Gln Tyr Arg Ile Pro Cys Pro Tyr Gln
                        455
                                            460
Ala Asn Pro Lys Ala Arg Pro Glu Leu Ala Leu Phe Met Ile Lys Tyr
                    470
                                        475
Leu Met Thr Leu Ile Val Gly Ile Ser Ala Val Phe Trp Val Gly Ser
                485
                                    490
Lys Lys Thr Cys Thr Glu Trp Ala Gly Phe Phe Lys Arg Asn Arg Lys
            500
                               505
Arg Asp Pro Ile Ser Glu Ser Arg Arg Val Leu Gln Glu Ser Cys Glu
                           520
Phe Phe Leu Lys His Asn Ser Lys Val Lys His Lys Lys His Gly
                        535
Ala Pro Gly Pro His Arg Leu Lys Val Ile Ser Lys Ser Met Gly Thr
                    550
                                        555
Ser Thr Gly Ala Thr Thr Asn His Gly Thr Ser Ala Met Ala Ile Ala
               565
                                    570
Asp His Asp Tyr Leu Gly Gln Glu Thr Ser Thr Glu Val His Thr Ser
            580
                               585
Pro Glu Ala Ser Val Lys Glu Gly Arg Ala Asp Arg Ala Asn Thr Pro
                           600
                                                605
Ser Ala Lys Asp Arg Asp Cys Gly Glu Ser Ala Gly Pro Ser Ser Lys
                        615
                                           620
Leu Ser Gly Asn Arg Asn Gly Arg Glu Ser Arg Ala Gly Gly Leu Lys
                    630
                                       635
Glu Arg Ser Asn Gly Ser Glu Gly Ala Pro Ser Glu Gly Arg Val Ser
                                    650
Pro Lys Ser Ser Val Pro Glu Thr Gly Leu Ile Asp Cys Ser Thr Ser
Gln Ala Ala Ser Ser Pro Glu Pro Thr Ser Leu Lys Gly Ser Thr Ser
                            680
Leu Pro Val His Ser Ala Ser Arg Ala Arg Lys Glu Gln Gly Ala Gly
                        695
Ser His Ser Asp Ala
705
<210> 54
<211> 574
<212> PRT
<213> Homo sapiens
```

<400> 54

Met Arg Asp Pro Gly Ala Ala Ala Pro Leu Ser Ser Leu Gly Leu Cys

1 5 10 15

Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Ser Ala Gly Ala Gly Ala

```
20
                                25
Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe
                            40
                                                45
Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln
                        55
                                            60
Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly
                    70
                                        75
Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro
                85
                                    90
Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val
                                105
Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg
                            120
Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu
                        135
Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys
                    150
Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Pro Gly Gly Pro
                165
                                    170
Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Leu Pro Phe Thr Ala
            180
                                185
Leu Pro Pro Gly Ala Ser Asp Gly Arg Gly Arg Pro Ala Phe Pro Phe
                            200
Ser Cys Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe
                       215
Leu Gly Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn
                   230
Gly Leu Met Tyr Phe Lys Glu Glu Glu Arg Arg Phe Ala Arg Leu Trp
               245
                                   250
Val Gly Val Trp Ser Val Leu Cys Cys Ala Ser Thr Leu Phe Thr Val
                               265
Leu Thr Tyr Leu Val Asp Met Arg Arg Phe Ser Tyr Pro Glu Arg Pro
        275
                            280
                                                285
Ile Ile Phe Leu Ser Gly Cys Tyr Phe Met Val Ala Val Ala His Val
                        295
Ala Gly Phe Leu Leu Glu Asp Arg Ala Val Cys Val Glu Arg Phe Ser
                                        315
Asp Asp Gly Tyr Arg Thr Val Ala Gln Gly Thr Lys Lys Glu Gly Cys
                325
                                    330
Thr Ile Leu Phe Met Val Leu Tyr Phe Phe Gly Met Ala Ser Ser Ile
                                345
Trp Trp Val Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys
                            360
Trp Gly His Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe His Leu Ala
                        375
Ala Trp Ala Val Pro Ala Val Lys Thr Ile Thr Ile Leu Ala Met Gly
                    390
                                        395
Gln Val Asp Gly Asp Leu Leu Ser Gly Val Cys Tyr Val Gly Leu Ser
                                    410
Ser Val Asp Ala Leu Arg Gly Phe Val Leu Ala Pro Leu Phe Val Tyr
                                425
Leu Phe Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe Val Ser Leu Phe
       435
                            440
Arg Ile Arg Thr Ile Met Lys His Asp Gly Thr Lys Thr Glu Lys Leu
                       455
Glu Lys Leu Met Val Arg Ile Gly Val Phe Ser Val Leu Tyr Thr Val
                    470
                                        475
```

```
Pro Ala Thr Ile Val Leu Ala Cys Tyr Phe Tyr Glu Gln Ala Phe Arg
                485
                                    490
Glu His Trp Glu Arg Thr Trp Leu Leu Gln Thr Cys Lys Ser Tyr Ala
                                505
Val Pro Cys Pro Pro Gly His Phe Pro Pro Met Ser Pro Asp Phe Thr
                            520
Val Phe Met Ile Lys Tyr Leu Met Thr Met Ile Val Gly Ile Thr Thr
                        535
Gly Phe Trp Ile Trp Ser Gly Lys Thr Leu Gln Ser Trp Arg Arg Phe
                   550
                                        555
Tyr His Arg Leu Ser His Ser Ser Lys Gly Glu Thr Ala Val
                565
<210> 55
<211> 572
<212> PRT
<213> Mouse
<400> 55
Met Arg Gly Pro Gly Thr Ala Ala Ser His Ser Pro Leu Gly Leu Cys
                5
Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Pro Thr Asp Thr Arg Ala
                                25
Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe
                            40
Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln
                        55
Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly
                                        75
Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro
                                    90
Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val
                                105
Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg
                            120
Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu
                        135
Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys
                    150
                                        155
Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Ala Gly Gly Ser Pro
                                    170
Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Pro Pro Phe Thr Ala
                                185
Met Ser Pro Ser Asp Gly Arg Gly Arg Leu Ser Phe Pro Phe Ser Cys
                            200
Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe Leu Gly
                        215
                                            220
Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn Gly Leu
                    230
                                        235
Met Tyr Phe Lys Glu Glu Glu Arg Arg Phe Ala Arg Leu Trp Val Gly
                245
                                    250
Val Trp Ser Val Leu Ser Cys Ala Ser Thr Leu Phe Thr Val Leu Thr
                                265
Tyr Leu Val Asp Met Arg Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile
                           280
Phe Leu Ser Gly Cys Tyr Phe Met Val Ala Val Ala His Val Ala Gly
   290
```

```
Phe Leu Leu Glu Asp Arg Ala Val Cys Val Glu Arg Phe Ser Asp Asp
                    310
                                        315
Gly Tyr Arg Thr Val Ala Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile
                325
                                   330
Leu Phe Met Val Leu Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp
            340
                                345
Val Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly
                            360
His Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe His Leu Ala Ala Trp
                        375
                                            380
Ala Val Pro Ala Val Lys Thr Ile Thr Ile Leu Ala Met Gly Gln Val
                    390
                                        395
Asp Gly Asp Leu Leu Ser Gly Val Cys Tyr Val Gly Leu Ser Ser Val
                405
                                    410
Asp Ala Leu Arg Gly Phe Val Leu Ala Pro Leu Phe Val Tyr Leu Phe
           420
                                425
Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile
        435
                           440
Arg Thr Ile Met Lys His Asp Gly Thr Lys Thr Glu Lys Leu Glu Lys
                        455
                                            460
Leu Met Val Arg Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala
                    470
                                        475
Thr Ile Val Leu Ala Cys Tyr Phe Tyr Glu Gln Ala Phe Arg Glu His
                                   490
Trp Glu Arg Thr Trp Leu Leu Gln Thr Cys Lys Ser Tyr Ala Val Pro
           500
                                505
Cys Pro Pro Arg His Phe Ser Pro Met Ser Pro Asp Phe Thr Val Phe
                           520
Met Ile Lys Tyr Leu Met Thr Met Ile Val Gly Ile Thr Thr Gly Phe
                        535
                                           540
Trp Ile Trp Ser Gly Lys Thr Leu Gln Ser Trp Arg Arg Phe Tyr His
                    550
                                        555
Arg Leu Ser His Ser Ser Lys Gly Glu Thr Ala Val
<210> 56
<211> 694
<212> PRT
<213> Homo sapiens
<400> 56
Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
                5
                                    10
Ala Leu Leu Gln Arg Ser Ser Gly Ala Ala Ala Ser Ala Lys Glu
                                25
Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
                    70
                                        75
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
               85
                                    90
Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
                               105
Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
```

```
Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
                        135
Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
                   150
                                       155
Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Gly Glu Gln Pro
                165
                                   170
Pro Ser Gly Ser Gly His Gly Arg Pro Pro Gly Ala Arg Pro Pro His
                                185
Arg Gly Gly Gly Arg Gly Gly Gly Gly Asp Ala Ala Ala Pro Pro
Ala Arg Gly Gly Gly Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly
                        215
Ala Ala Pro Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser
                    230
                                        235
Val Ser Ser Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln
                245
                                    250
Ile Ala Asn Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp
                               265
Glu Arg Ala Phe Thr Val Phe Trp Ile Gly Leu Trp Ser Val Leu Cys
                            280
Phe Val Ser Thr Phe Ala Thr Val Ser Thr Phe Leu Ile Asp Met Glu
                        295
Arg Phe Lys Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Ala Cys Tyr
                   310
                                        315
Leu Phe Val Ser Val Gly Tyr Leu Val Arg Leu Val Ala Gly His Glu
               325
                                   330
Lys Val Ala Cys Ser Gly Gly Ala Pro Gly Ala Gly Gly Ala Gly Gly
            340
                                345
Ala Gly Gly Ala Ala Ala Gly Ala Gly Ala Gly Ala Gly Ala Gly
                            360
Gly Pro Gly Gly Arg Gly Glu Tyr Glu Glu Leu Gly Ala Val Glu Gln
                        375
                                           380
His Val Arg Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Val Val Phe
                    390
                                        395
Leu Leu Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile
                                    410
Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly Asn Glu
                                425
Ala Ile Ala Gly Tyr Ser Gln Tyr Phe His Leu Ala Ala Trp Leu Val
                            440
Pro Ser Val Lys Ser Ile Ala Val Leu Ala Leu Ser Ser Val Asp Gly
                        455
Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Ser Leu Asp Asn
                    470
                                        475
Leu Arg Gly Phe Val Leu Ala Pro Leu Val Ile Tyr Leu Phe Ile Gly
                                    490
Thr Met Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser
                               505
Val Ile Lys Gln Gln Asp Gly Pro Thr Lys Thr His Lys Leu Glu Lys
                           520
Leu Met Ile Arg Leu Gly Leu Phe Thr Val Leu Tyr Thr Val Pro Ala
                       535
                                           540
Ala Val Val Ala Cys Leu Phe Tyr Glu Gln His Asn Arg Pro Arg
                   550
                                       555
Trp Glu Ala Thr His Asn Cys Pro Cys Leu Arg Asp Leu Gln Pro Asp
                565
                                   570
Gln Ala Arg Arg Pro Asp Tyr Ala Val Phe Met Leu Lys Tyr Phe Met
```

```
580
                                585
Cys Leu Val Val Gly Ile Thr Ser Gly Val Trp Val Trp Ser Gly Lys
                           600
                                               605
Thr Leu Glu Ser Trp Arg Ser Leu Cys Thr Arg Cys Cys Trp Ala Ser
                        615
                                            620
Lys Gly Ala Ala Val Gly Gly Gly Ala Gly Ala Thr Ala Ala Gly Gly
                    630
                                        635
Gly Gly Gly Pro Gly Gly Gly Gly Gly Gly Pro Gly Gly Gly
                645
                                    650
Gly Pro Gly Gly Gly Gly Ser Leu Tyr Ser Asp Val Ser Thr Gly
                               665
Leu Thr Trp Arg Ser Gly Thr Ala Ser Ser Val Ser Tyr Pro Lys Gln
Met Pro Leu Ser Gln Val
    690
<210> 57
<211> 685
<212> PRT
<213> Mouse
<400> 57
Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
Ala Val Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
       35
                           40
Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
                       55
Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
                   70
                                       75
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
                85
                                   90
Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
                                105
Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
                        135
Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
                    150
                                        155
Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Pro Gly Glu Gln
                                    170
Pro Pro Ser Gly Ser Gly His Ser Arg Pro Pro Gly Ala Arg Pro Pro
                                185
His Arg Gly Gly Ser Ser Arg Gly Ser Gly Asp Ala Ala Ala Pro
                            200
Pro Ser Arg Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly Ala Ala Pro
                        215
                                           220
Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser Val Ser Ser
                   230
                                       235
Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln Ile Ala Asn
               245
                                   250
Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp Glu Arg Ala
                               265
Phe Thr Val Phe Trp Ile Gly Leu Trp Ser Val Leu Cys Phe Val Ser
```

```
275
                            280
Thr Phe Ala Thr Val Ser Thr Phe Leu Ile Asp Met Glu Arg Phe Lys
                       295
Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Ala Cys Tyr Leu Phe Val
                   310
                                        315
Ser Val Gly Tyr Leu Val Arg Leu Val Ala Gly His Glu Lys Val Ala
               325
                                   330
Cys Ser Gly Gly Ala Pro Gly Ala Gly Gly Arg Gly Gly Ala Gly Gly
                                345
Ala Ala Ala Gly Ala Gly Ala Ala Gly Arg Gly Ala Ser Ser Pro
                            360
                                               365
Gly Ala Arg Gly Glu Tyr Glu Glu Leu Gly Ala Val Glu Gln His Val
                       375
                                           380
Arg Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Val Val Phe Leu Leu
                   390
                                        395
Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu Ser
                405
                                    410
Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly Asn Glu Ala Ile
           420
                                425
Ala Gly Tyr Ser Gln Tyr Phe His Leu Ala Ala Trp Leu Val Pro Ser
        435
                            440
Val Lys Ser Ile Ala Val Leu Ala Leu Ser Ser Val Asp Gly Asp Pro
                       455
                                            460
Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Ser Leu Asp Asn Leu Arg
                   470
                                       475
Gly Phe Val Leu Ala Pro Leu Val Ile Tyr Leu Phe Ile Gly Thr Met
               485
                                   490
Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser Val Ile
                               505
Lys Gln Gln Gly Gly Pro Thr Lys Thr His Lys Leu Glu Lys Leu Met
                           520
Ile Arg Leu Gly Leu Phe Thr Val Leu Tyr Thr Val Pro Ala Ala Val
                       535
                                           540
Val Val Ala Cys Leu Phe Tyr Glu Gln His Asn Arg Pro Arg Trp Glu
                   550
                                       555
Ala Thr His Asn Cys Pro Cys Leu Arg Asp Leu Gln Pro Asp Gln Ala
                565
                                   570
Arg Arg Pro Asp Tyr Ala Val Phe Met Leu Lys Tyr Phe Met Cys Leu
                                585
Val Val Gly Ile Thr Ser Gly Val Trp Val Trp Ser Gly Lys Thr Leu
Glu Ser Trp Arg Ala Leu Cys Thr Arg Cys Cys Trp Ala Ser Lys Gly
                       615
Ala Ala Val Gly Ala Gly Ala Gly Gly Ser Gly Pro Gly Gly Ser Gly
                                        635
Pro Gly Pro Gly Gly Gly Gly His Gly Gly Gly Gly Ser Leu
                645
Tyr Ser Asp Val Ser Thr Gly Leu Thr Trp Arg Ser Gly Thr Ala Ser
                               665
Ser Val Ser Tyr Pro Lys Gln Met Pro Leu Ser Gln Val
```

<210> 58

<211> 591

<212> PRT

<213> Homo sapiens

```
<400> 58
Met Ala Val Ala Pro Leu Arg Gly Ala Leu Leu Trp Gln Leu Leu
                                    10
Ala Ala Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu Arg
                                25
Gly Arg Gly Ala Ala Pro Cys Gln Ala Val Glu Ile Pro Met Cys Arg
                            40
Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His Thr
                        55
Ser Gln Gly Glu Ala Ala Ala Glu Leu Ala Glu Phe Ala Pro Leu Val
Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu Tyr
Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys Arg
                                105
Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu Gln
                            120
                                                125
Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro Thr
                        135
                                            140
Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala Thr
                   150
                                        155
Ala Gly Pro Ala Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala
                165
                                   170
Pro Arg Pro Ala Arg Pro Pro Gly Asp Leu Gly Pro Gly Ala Gly Gly
Ser Gly Thr Cys Glu Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys Ser
                           200
Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp Ser
                        215
                                           220
Arg Arg Asp Lys Asp Phe Ala Leu Val Trp Met Ala Val Trp Ser Ala
                   230
                                       235
Leu Cys Phe Phe Ser Thr Ala Phe Thr Val Leu Thr Phe Leu Leu Glu
                245
                                    250
Pro His Arg Phe Gln Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Met
                                265
Cys Tyr Asn Val Tyr Ser Leu Ala Phe Leu Ile Arg Ala Val Ala Gly
Ala Gln Ser Val Ala Cys Asp Gln Glu Ala Gly Ala Leu Tyr Val Ile
                        295
Gln Glu Gly Leu Glu Asn Thr Gly Cys Thr Leu Val Phe Leu Leu Leu
                    310
                                        315
Tyr Tyr Phe Gly Met Ala Ser Ser Leu Trp Trp Val Val Leu Thr Leu
                325
                                    330
Thr Trp Phe Leu Ala Ala Gly Lys Lys Trp Gly His Glu Ala Ile Glu
                                345
Ala His Gly Ser Tyr Phe His Met Ala Ala Trp Gly Leu Pro Ala Leu
                            360
Lys Thr Ile Val Ile Leu Thr Leu Arg Lys Val Ala Gly Asp Glu Leu
                        375
Thr Gly Leu Cys Tyr Val Ala Ser Thr Asp Ala Ala Leu Thr Gly
                   390
                                        395
Phe Val Leu Val Pro Leu Ser Gly Tyr Leu Val Leu Gly Ser Ser Phe
               405
                                    410
Leu Leu Thr Gly Phe Val Ala Leu Phe His Ile Arg Lys Ile Met Lys
           420
                               425
Thr Gly Gly Thr Asn Thr Glu Lys Leu Glu Lys Leu Met Val Lys Ile
        435
```

```
Gly Val Phe Ser Ile Leu Tyr Thr Val Pro Ala Thr Cys Val Ile Val
                        455
Cys Tyr Val Tyr Glu Arg Leu Asn Met Asp Phe Trp Arg Leu Arg Ala
                   470
                                       475
Thr Glu Gln Pro Cys Ala Ala Ala Gly Pro Gly Gly Arg Arg Asp
                485
                                   490
Cys Ser Leu Pro Gly Gly Ser Val Pro Thr Val Ala Val Phe Met Leu
                               505
Lys Ile Phe Met Ser Leu Val Val Gly Ile Thr Ser Gly Val Trp Val
                            520
Trp Ser Ser Lys Thr Phe Gln Thr Trp Gln Ser Leu Cys Tyr Arg Lys
                        535
Ile Ala Ala Gly Arg Ala Arg Ala Lys Ala Cys Arg Ala Pro Gly Ser
                                        555
Tyr Gly Arg Gly Thr His Cys His Tyr Lys Ala Pro Thr Val Val Leu
               565
                                  570
His Met Thr Lys Thr Asp Pro Ser Leu Glu Asn Pro Thr His Leu
                                585
<210> 59
<211> 591
<212> PRT
<213> Mouse
<400> 59
Met Ala Val Pro Pro Leu Leu Arg Gly Ala Leu Leu Trp Gln Leu
               5
                                   10
Leu Ala Thr Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu
                               25
Arg Gly Arg Gly Pro Ala Pro Cys Gln Ala Met Glu Ile Pro Met Cys
                           40
Arg Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His
                        55
                                           60
Thr Ser Gln Gly Glu Ala Ala Gln Leu Ala Glu Phe Ser Pro Leu
                                       75
Val Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu
Tyr Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys
Arg Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu
                            120
                                                125
Gln Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro
                        135
                                           140
Thr Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Thr
```

```
Pro His Arg Phe Gln Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Met
            260
                                265
Cys Tyr Asn Val Tyr Ser Leu Ala Phe Leu Ile Arg Ala Val Ala Gly
                           280
Ala Gln Ser Val Ala Cys Asp Gln Glu Ala Gly Ala Leu Tyr Val Ile
                        295
                                            300
Gln Glu Gly Leu Glu Asn Thr Gly Cys Thr Leu Val Phe Leu Leu
                    310
                                       315
Tyr Tyr Phe Gly Met Ala Ser Ser Leu Trp Trp Val Val Leu Thr Leu
                325
                                    330
Thr Trp Phe Leu Ala Ala Gly Lys Lys Trp Gly His Glu Ala Ile Glu
                                345
Ala His Gly Ser Tyr Phe His Met Ala Ala Trp Gly Leu Pro Ala Leu
                            360
Lys Thr Ile Val Val Leu Thr Leu Arg Lys Val Ala Gly Asp Glu Leu
                        375
                                            380
Thr Gly Leu Cys Tyr Val Ala Ser Met Asp Pro Ala Ala Leu Thr Gly
                    390
                                        395
Phe Val Leu Val Pro Leu Ser Cys Tyr Leu Val Leu Gly Thr Ser Phe
                405
                                   410
Leu Leu Thr Gly Phe Val Ala Leu Phe His Ile Arg Lys Ile Met Lys
           420
                               425
Thr Gly Gly Thr Asn Thr Glu Lys Leu Glu Lys Leu Met Val Lys Ile
                           440
Gly Val Phe Ser Ile Leu Tyr Thr Val Pro Ala Thr Cys Val Ile Val
                       455
Cys Tyr Val Tyr Glu Arg Leu Asn Met Asp Phe Trp Arg Leu Arg Ala
                   470
                                        475
Thr Glu Gln Pro Cys Thr Ala Ala Thr Val Pro Gly Gly Arg Arg Asp
                485
                                    490
Cys Ser Leu Pro Gly Gly Ser Val Pro Thr Val Ala Val Phe Met Leu
            500
                                505
Lys Ile Phe Met Ser Leu Val Val Gly Ile Thr Ser Gly Val Trp Val
                            520
                                                525
Trp Ser Ser Lys Thr Phe Gln Thr Trp Gln Ser Leu Cys Tyr Arg Lys
                        535
                                            540
Met Ala Ala Gly Arg Ala Arg Ala Lys Ala Cys Arg Thr Pro Gly Gly
                                        555
Tyr Gly Arg Gly Thr His Cys His Tyr Lys Ala Pro Thr Val Val Leu
                565
                                    570
His Met Thr Lys Thr Asp Pro Ser Leu Glu Asn Pro Thr His Leu
            580
                                585
<210> 60
<211> 581
<212> PRT
<213> Homo sapiens
<220>
<221> Variant
<222> (464)
<223> Xaa = any amino acid
<400> 60
Met Gln Arg Pro Gly Pro Arg Leu Trp Leu Val Leu Gln Val Met Gly
                                    10
```

Ser Cys Ala Ala Ile Ser Ser Met Asp Met Glu Arg Pro Gly Asp Gly

```
2.0
                                25
Lys Cys Gln Pro Ile Glu Ile Pro Met Cys Lys Asp Ile Gly Tyr Asn
                            40
Met Thr Arg Met Pro Asn Leu Met Gly His Glu Asn Gln Arg Glu Ala
                        55
                                            60
Ala Ile Gln Leu His Glu Phe Ala Pro Leu Val Glu Tyr Gly Cys His
                    70
                                        75
Gly His Leu Arg Phe Phe Leu Cys Ser Leu Tyr Ala Pro Met Cys Thr
                85
                                    90
Glu Gln Val Ser Thr Pro Ile Pro Ala Cys Arg Val Met Cys Glu Gln
                                105
Ala Arg Leu Lys Cys Ser Pro Ile Met Glu Gln Phe Asn Phe Lys Trp
                            120
Pro Asp Ser Leu Asp Cys Arg Lys Leu Pro Asn Lys Asn Asp Pro Asn
                        135
Tyr Leu Cys Met Glu Ala Pro Asn Asn Gly Ser Asp Glu Pro Thr Arg
                    150
                                        155
Gly Ser Gly Leu Phe Pro Pro Leu Phe Arg Pro Gln Arg Pro His Ser
                165
                                    170
Ala Gln Glu His Pro Leu Lys Asp Gly Gly Pro Gly Arg Gly Gly Cys
           180
                                185
Asp Asn Pro Gly Lys Phe His His Val Glu Lys Ser Ala Ser Cys Ala
                            200
Pro Leu Cys Thr Pro Gly Val Asp Val Tyr Trp Ser Arg Glu Asp Lys
                       215
                                            220
Arg Phe Ala Val Val Trp Leu Ala Ile Trp Ala Val Leu Cys Phe Phe
                    230
                                        235
Ser Ser Ala Phe Thr Val Leu Thr Phe Leu Ile Asp Pro Ala Arg Phe
                245
                                    250
Arg Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Met Cys Tyr Cys Val
                               265
Tyr Ser Val Gly Tyr Leu Ile Arg Leu Phe Ala Gly Ala Glu Ser Ile
                            280
Ala Cys Asp Arg Asp Ser Gly Gln Leu Tyr Val Ile Gln Glu Gly Leu
                        295
Glu Ser Thr Gly Cys Thr Leu Val Phe Leu Val Leu Tyr Tyr Phe Gly
                                        315
Met Ala Ser Ser Leu Trp Trp Val Val Leu Thr Leu Thr Trp Phe Leu
Ala Ala Gly Lys Lys Trp Gly His Glu Ala Ile Glu Ala Asn Ser Ser
                                345
Tyr Phe His Leu Ala Ala Trp Ala Ile Pro Ala Val Lys Thr Ile Leu
                            360
Ile Leu Val Met Arg Arg Val Ala Gly Asp Glu Leu Thr Gly Val Cys
                        375
Tyr Val Gly Ser Met Asp Val Asn Ala Leu Thr Gly Phe Val Leu Ile
                    390
                                        395
Pro Leu Ala Cys Tyr Leu Val Ile Gly Thr Ser Phe Ile Leu Ser Gly
                405
                                    410
Phe Val Ala Leu Phe His Ile Arg Arg Val Met Lys Thr Gly Gly Glu
                                425
Asn Thr Asp Lys Leu Glu Lys Leu Met Val Arg Ile Gly Leu Phe Ser
                            440
Val Leu Tyr Thr Val Pro Ala Thr Cys Val Ile Ala Cys Tyr Phe Xaa
                       455
Glu His Leu Asn Met Asp Tyr Trp Lys Ile Leu Ala Ala Gln His Lys
                    470
                                        475
```

```
Cys Lys Met Asn Asn Gln Thr Lys Thr Leu Asp Cys Leu Met Ala Ala
               485
                                   490
Ser Ile Pro Ala Val Glu Ile Phe Met Val Lys Ile Phe Met Leu Leu
                           505
           500
Val Val Gly Ile Thr Ser Gly Met Trp Ile Trp Thr Ser Lys Thr Leu
                           520
                                       525
Gln Ser Trp Gln Gln Val Cys Ser Arg Arg Leu Lys Lys Lys Ser Arg
                      535
                                         540
Arg Lys Pro Ala Ser Val Ile Thr Ser Gly Gly Ile Tyr Lys Lys Ala
               550
                                      555
Gln His Pro Gln Lys Thr His His Gly Lys Tyr Glu Ile Pro Ala Gln
               565
                                   570
Ser Pro Thr Cys Val
           580
<210> 61
<211> 319
<212> PRT
<213> Homo sapiens
<400> 61
Met Ala Glu Glu Glu Ala Pro Lys Lys Ser Arg Ala Ala Gly Gly Gly
                                   10
Ala Ser Trp Glu Leu Cys Ala Gly Ala Leu Ser Ala Arg Leu Ala Glu
Glu Gly Ser Gly Asp Ala Gly Gly Arg Arg Arg Pro Pro Val Asp Pro
Arg Arg Leu Ala Arg Gln Leu Leu Leu Leu Trp Leu Leu Glu Ala
                      55
Pro Leu Leu Gly Val Arg Ala Gln Ala Ala Gly Gln Gly Pro Gly
                               ` 75
                   70
Gln Gly Pro Gly Pro Gly Gln Gln Pro Pro Pro Pro Gln Gln Gln
               85
                                  90
Gln Ser Gly Gln Gln Tyr Asn Gly Glu Arg Gly Ile Ser Val Pro Asp
                              105
His Gly Tyr Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala
                           120
                                               125
Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr Asn Gln Glu
                       135
Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln
                   150
                                       155
Cys Ser Ala Glu Leu Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro Val
               165
                                   170
Cys Thr Val Leu Glu Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys Glu
                               185
Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln
                           200
Trp Pro Asp Thr Leu Lys Cys Glu Lys Phe Pro Val His Gly Ala Gly
                       215
                                           220
Glu Leu Cys Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr Pro
                                      235
Ser Leu Leu Pro Glu Phe Trp Thr Ser Asn Pro Gln His Gly Gly Gly
               245
                                   250
Gly His Arg Gly Gly Phe Pro Gly Gly Ala Gly Ala Ser Glu Arg Gly
          260
                             265
Lys Phe Ser Cys Pro Arg Ala Leu Lys Val Pro Ser Tyr Leu Asn Tyr
```

```
His Phe Leu Gly Glu Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr Lys
                       295
                                            300
Val Tyr Gly Leu Met Tyr Phe Gly Pro Glu Glu Leu Arg Phe Ser
                   310
<210> 62
<211> 314
<212> PRT
<213> Mouse
<400> 62
Met Ala Glu Glu Ala Ala Pro Ser Glu Ser Arg Ala Ala Gly Arg Leu
                                    10
Ser Leu Glu Leu Cys Ala Glu Ala Leu Pro Gly Arg Arg Glu Glu Val
Gly His Glu Asp Thr Ala Ser His Arg Arg Pro Arg Ala Asp Pro Arg
Arg Trp Ala Ser Gly Leu Leu Leu Leu Trp Leu Leu Glu Ala Pro
Leu Leu Gly Val Arg Ala Gln Ala Gly Gln Val Ser Gly Pro
Gly Gln Gln Ala Pro Pro Pro Pro Gln Pro Gln Gln Ser Gly Gln Gln
                                  90
               85
Tyr Asn Gly Glu Arg Gly Ile Ser Ile Pro Asp His Gly Tyr Cys Gln
                               105
Pro Ile Ser Ile Pro Leu Cys Thr Asp Met Ala Tyr Asn Gln Thr Ile
                           120
Met Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly Leu Glu
                       135
Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Ala Glu Leu
                  150
                                       155
Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val Leu Glu
               165
                                  170
Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg Gln Gly
                               185
Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp. Pro Asp Thr Leu
                            200
                                               205
Lys Cys Glu Lys Phe Pro Val His Gly Ala Gly Glu Leu Cys Val Gly
                        215
                                            220
Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr Pro Ser Leu Leu Pro Glu
                    230
                                        23.5
Phe Trp Thr Ser Asn Gly Gln His Gly Gly Gly Gly Tyr Arg Gly Gly
               245
                                    250
Tyr Pro Gly Gly Ala Gly Thr Val Glu Arg Gly Lys Phe Ser Cys Pro
                                265
Arg Ala Leu Arg Val Pro Ser Tyr Leu Asn Tyr His Phe Leu Gly Glu
                            280
Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr Lys Val Tyr Gly Leu Met
                        295
Tyr Phe Gly Pro Glu Glu Leu Arg Phe Ser
<210> 63
<211> 244
<212> PRT
<213> Homo sapiens
```

```
<400> 63
Met Arg Pro Arg Ser Ala Leu Pro Arg Leu Leu Pro Leu Leu Leu
                                    10
Leu Pro Ala Ala Gly Pro Ala Gln Phe His Gly Glu Lys Gly Ile Ser
                                25
Ile Pro Asp His Gly Phe Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr
                            40
Asp Ile Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr
                        55
                                            60
Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val
                                        75
Lys Val Gln Cys Ser Pro Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr
Ala Pro Val Cys Thr Val Leu Glu Gln Ala Ile Pro Pro Cys Arg Ser
                                105
Ile Cys Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe
                            120
Gly Phe Gln Trp Pro Glu Arg Leu Arg Cys Glu His Phe Pro Arg His
                        135
Gly Ala Glu Gln Ile Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala
                    150
                                        155
Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala
                165
                                    170
Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Gly Ala Pro Pro Arg Tyr
                                185
Ala Thr Leu Glu His Pro Phe His Cys Pro Arg Val Leu Lys Val Pro
                            200
Ser Tyr Leu Ser Tyr Lys Phe Leu Gly Glu Arg Asp Cys Ala Ala Pro
                       215
Cys Glu Pro Ala Arg Pro Asp Gly Ser Met Phe Phe Ser Gln Glu Glu
                    230
                                        235
Thr Arg Phe Ala
```

<210> 64

<211> 202

<212> PRT

<213> Homo sapiens

<400> 64

 Met
 Ala
 Met
 Thr
 Trp
 Ile
 Val
 Phe
 Ser
 Leu
 Trp
 Pro
 Leu
 Thr
 Val
 Phe

 Met
 Gly
 His
 Ile
 Gly
 Gly
 His
 Ser
 Leu
 Phe
 Ser
 Cys
 Glu
 Pro
 Ile
 Thr

 Leu
 Arg
 Met
 Cys
 Gln
 Asp
 Leu
 Pro
 Tyr
 Asn
 Thr
 Thr
 Phe
 Met
 Pro
 Asn

 Leu
 Arg
 Met
 Cys
 Gln
 Gln
 Gln
 Thr
 Ala
 Ala
 Leu
 Ala
 Met
 Glu
 Pro
 Pro

 Phe
 His
 Pro
 Met
 Val
 Asn
 Leu
 Asp
 Cys
 Ser
 Arg
 Asp
 Phe
 Arg
 Pro
 Phe

 Phe
 His
 Pro
 Met
 Asp
 Leu
 Asp
 Cys
 Ser
 Arg
 Arg
 Phe
 Arg
 Phe
 Arg
 Phe
 Arg
 Arg
 Arg
 Arg
 Arg
 A

```
130
                        135
                                            140
Leu Ala Gly Glu Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp
                   150
                                 155
Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly
                165
                                    170
Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met
                                185
Tyr Phe Arg Arg Glu Glu Leu Ser Phe Ala
       195
<210> 65
<211> 202
<212> PRT
<213> Mouse
<400> 65
Met Ala Val Ser Trp Ile Val Phe Asp Leu Trp Leu Leu Thr Val Phe
Leu Gly Gln Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn
Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
                        55
Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
                    70
                                        75
Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
                85
                                    90
Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
                                105
                                                    110
Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
                            120
                                                125
Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn
                        135
                                            140
Leu Val Gly Asp Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp
                    150
                                        155
Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly
                165
                                    170
Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met
                                185
Tyr Phe Arg Arg Glu Glu Leu Ser Phe Ala
                            200
<210> 66
<211> 219
<212> PRT
<213> Homo sapiens
<400> 66
Met Ala Trp Arg Gly Ala Gly Pro Ser Val Pro Gly Ala Pro Gly Gly
                                    10
Val Gly Leu Ser Leu Gly Leu Leu Leu Gln Leu Leu Leu Leu Gly
                                25
Pro Ala Arg Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
                           40
                                                45
Arg Ile Ser Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
```

```
Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
                    70
                                        75
Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
                85
                                    90
Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
                                105
Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
                            120
                                                125
Glu Pro Val Leu Lys Glu Phe Gly Phe Ala Trp Pro Glu Ser Leu Asn
                        135
                                            140
Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
                    150
                                        155
Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
                165
                                    170
Pro Gly Glu Glu Cys His Ser Val Gly Thr Asn Ser Asp Gln Tyr Ile
                                185
Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
                           200
                                                 205
Gly Leu Tyr Ser Arg Ser Ala Lys Glu Phe Thr
                        215
<210> 67
<211> 219
<212> PRT
<213> Mouse
<400> 67
Met Ala Trp Pro Gly Thr Gly Pro Ser Ser Arg Gly Ala Pro Gly Gly
                                    10
Val Gly Leu Arg Leu Gly Leu Leu Leu Gln Phe Leu Leu Leu Arg
                                25
Pro Thr Leu Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
                            40
                                                45
Arg Ile Ala Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
                                    90
Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
                                105
Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
                            120
                                                125
Glu Pro Val Leu Arg Glu Phe Gly Phe Ala Trp Pro Asp Thr Leu Asn
                        135
                                            140
Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
                                        155
Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
                165
Pro Gly Glu Glu Cys His Ser Val Gly Ser Asn Ser Asp Gln Tyr Ile
           180
                               185
Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
                            200
                                                205
Gly Leu Tyr Ser Arg Ser Ala Lys Glu Phe Thr
                        215
```

<210> 68

```
<211> 235
<212> PRT
<213> Homo sapiens
<400> 68
Met Ala Arg Pro Asp Pro Ser Ala Pro Pro Ser Leu Leu Leu Leu
Leu Ala Gln Leu Val Gly Arg Ala Ala Ala Ala Ser Lys Ala Pro Val
Cys Gln Glu Ile Thr Val Pro Met Cys Arg Gly Ile Gly Tyr Asn Leu
Thr His Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu Ala Gly
Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys Ser Pro
Asp Leu Arg Phe Phe Leu Cys Thr Met Tyr Thr Pro Ile Cys Leu Pro
                85
                                    90
Asp Tyr His Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu Arg Ala
                                105
Lys Ala Gly Cys Ser Pro Leu Met Arg Gln Tyr Gly Phe Ala Trp Pro
                            120
Glu Arg Met Ser Cys Asp Arg Leu Pro Val Leu Gly Arg Asp Ala Glu
                        135
Val Leu Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro
                    150
                                        155
Arg Pro Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro
                165
                                    170
Ala Ser Gly Gly Glu Cys Pro Ala Gly Gly Pro Phe Val Cys Lys Cys
            180
                                185
Arg Glu Pro Phe Val Pro Ile Leu Lys Glu Ser His Pro Leu Tyr Asn
                            200
Lys Val Arg Thr Gly Gln Val Pro Asn Cys Ala Val Pro Cys Tyr Gln
                        215
Pro Ser Phe Ser Ala Asp Glu Arg Thr Phe Ala
<210> 69
<211> 198
<212> PRT
<213> Homo sapiens
Met Glu Met Phe Thr Phe Leu Leu Thr Cys Ile Phe Leu Pro Leu Leu
                                    10
Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
Met Lys Met Ala Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
                            40
Tyr Asp Gln Ser Ile Ala Ala Val Glu Met Glu His Phe Leu Pro Leu
                        55
Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Thr Phe Leu Cys Lys Ala
                    70
                                        75
Phe Val Pro Thr Cys Ile Glu Gln Ile His Val Val Pro Pro Cys Arg
                85
                                    90
Lys Leu Cys Glu Lys Val Tyr Ser Asp Cys Lys Lys Leu Ile Asp Thr
                                105
Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asp Arg Leu Gln Tyr
```

```
115
                            120
                                                125
Cys Asp Glu Thr Val Pro Val Thr Phe Asp Pro His Thr Glu Phe Leu
                       135
                                           140
Gly Pro Gln Lys Lys Thr Glu Gln Val Gln Arg Asp Ile Gly Phe Trp
                    150
                                        155
Cys Pro Arg His Leu Lys Thr Ser Gly Gly Gln Gly Tyr Lys Phe Leu
                                    170
Gly Ile Asp Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
                                185
Asp Glu Leu Glu Phe Ala
       195
<210> 70
<211> 198
<212> PRT
<213> Mouse
<400> 70
Met Glu Arg Ser Pro Phe Leu Leu Ala Cys Ile Leu Leu Pro Leu Val
Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
            20
                                25
Met Lys Met Thr Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
                            40
Tyr Asp Gln Gly Ile Ala Ala Val Glu Met Gly His Phe Leu His Leu
                        55
                                            60
Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Met Phe Leu Cys Gln Ala
                    70
                                        75
Phe Ile Pro Thr Cys Thr Glu Gln Ile His Val Val Leu Pro Cys Arg
                                    90
Lys Leu Cys Glu Lys Ile Val Ser Asp Cys Lys Lys Leu Met Asp Thr
                                105
Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asn Arg Leu Pro His
                            120
                                                125
Cys Asp Asp Thr Val Pro Val Thr Ser His Pro His Thr Glu Leu Ser
                        135
Gly Pro Gln Lys Lys Ser Asp Gln Val Pro Arg Asp Ile Gly Phe Trp
                    150
                                        155
Cys Pro Lys His Leu Arg Thr Ser Gly Asp Gln Gly Tyr Arg Phe Leu
                165
                                    170
Gly Ile Glu Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
            180
                                185
Asp Glu Leu Asp Phe Ala
<210> 71
<211> 253
<212> PRT
<213> Homo sapiens
<400> 71
Met Arg Asp Pro Gly Ala Ala Pro Leu Ser Ser Leu Gly Leu Cys
                 5
                                    10
Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Ser Ala Gly Ala Gly Ala
            20
                                25
Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe
```

```
Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln
                        55
Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly
                   70
                                        75
Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro
                85
                                    90
Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val
                               105
Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg
                            120
                                                125
Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu
                        135
Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys
                    150
Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Pro Gly Gly Pro
                165
                                    170
Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Leu Pro Phe Thr Ala
           180
                                185
Leu Pro Pro Gly Ala Ser Asp Gly Arg Gly Arg Pro Ala Phe Pro Phe
                           200
Ser Cys Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe
                        215
                                           220
Leu Gly Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn
                   230
Gly Leu Met Tyr Phe Lys Glu Glu Glu Arg Arg Phe Ala
                245
```

<210> 72

<211> 251

<212> PRT

<213> Mouse

<400> 72

Met Arg Gly Pro Gly Thr Ala Ala Ser His Ser Pro Leu Gly Leu Cys 10 Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Pro Thr Asp Thr Arg Ala Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro 85 Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val 105 Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg 120 Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu 135 Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys 150 155 Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Ala Gly Gly Ser Pro 165 170 Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Pro Pro Phe Thr Ala 185

```
200
Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe Leu Gly
                       215
                                          220
Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn Gly Leu
                   230
                                      235
Met Tyr Phe Lys Glu Glu Glu Arg Arg Phe Ala
<210> 73
<211> 277
<212> PRT
<213> Homo sapiens
<400> 73
Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
Ala Leu Leu Gln Arg Ser Ser Gly Ala Ala Ala Ser Ala Lys Glu
                               25
Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
                           40
Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
               85
                                  90
Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
           100
                              105
Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
                           120
                                              125
Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
                       135
                                       140
Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
                   150
                                       155
Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Gly Glu Gln Pro
                                   170
Pro Ser Gly Ser Gly His Gly Arg Pro Pro Gly Ala Arg Pro Pro His
Arg Gly Gly Gly Gly Gly Gly Gly Asp Ala Ala Pro Pro
                           200
Ala Arg Gly Gly Gly Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly
                       215
                                           220
Ala Ala Pro Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser
                   230
                                       235
Val Ser Ser Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln
                                   250
Ile Ala Asn Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp
                               265
Glu Arg Ala Phe Thr
       275
<210> 74
<211> 274
<212> PRT
<213> Mouse
```

Met Ser Pro Ser Asp Gly Arg Gly Arg Leu Ser Phe Pro Phe Ser Cys

```
<400> 74
Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
                                    10
Ala Val Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
                                25
Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
                            40
Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
                        55
Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
                                105
Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
                            120
Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
                        135
                                            140
Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
                   150
                                        155
Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Pro Gly Glu Gln
                                   170
Pro Pro Ser Gly Ser Gly His Ser Arg Pro Pro Gly Ala Arg Pro Pro
                               185
His Arg Gly Gly Ser Ser Arg Gly Ser Gly Asp Ala Ala Ala Pro
                           200
Pro Ser Arg Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly Ala Ala Pro
                        215
                                           220
Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser Val Ser Ser
                    230
                                       235
Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln Ile Ala Asn
               245
                                    250
Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp Glu Arg Ala
Phe Thr
```

<210> 75 <211> 231

<212> PRT

<213> Homo sapiens

<400> 75

 Met
 Ala
 Val
 Ala
 Pro
 Leu
 Arg
 Gly
 Ala
 Leu
 L

```
100
                               105
Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu Gln
       115
                           120
                                         125
Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro Thr
                       135
                                           140
Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala Thr
                   150
                                       155
Ala Gly Pro Ala Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala
               165
                                   170
Pro Arg Pro Ala Arg Pro Pro Gly Asp Leu Gly Pro Gly Ala Gly Gly
                               185
Ser Gly Thr Cys Glu Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys Ser
                            200
Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp Ser
                       215
Arg Arg Asp Lys Asp Phe Ala
<210> 76
<211> 232
<212> PRT
<213> Mouse
<400> 76
Met Ala Val Pro Pro Leu Leu Arg Gly Ala Leu Leu Trp Gln Leu
                5
Leu Ala Thr Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu
                               25
Arg Gly Arg Gly Pro Ala Pro Cys Gln Ala Met Glu Ile Pro Met Cys
                           40
Arg Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His
                       55
                                           60
Thr Ser Gln Gly Glu Ala Ala Gln Leu Ala Glu Phe Ser Pro Leu
                   70
                                       75
Val Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu
Tyr Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys
                               105
Arg Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu
                           120
Gln Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro
                       135
                                           140
Thr Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala
                   150
                                       155
Thr Ala Gly Pro Thr Glu Pro His Lys Gly Leu Gly Met Leu Pro Val
               165
                                   170
Ala Pro Arg Pro Ala Arg Pro Pro Gly Asp Ser Ala Pro Gly Pro Gly
                               185
Ser Gly Gly Thr Cys Asp Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys
                           200
                                               205
Ser Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp
                       215
Ser Arg Arg Asp Lys Asp Phe Ala
<210> 77
<211> 227
```

```
<213> Homo sapiens
<400> 77
Met Gln Arg Pro Gly Pro Arg Leu Trp Leu Val Leu Gln Val Met Gly
Ser Cys Ala Ala Ile Ser Ser Met Asp Met Glu Arg Pro Gly Asp Gly
                                25
Lys Cys Gln Pro Ile Glu Ile Pro Met Cys Lys Asp Ile Gly Tyr Asn
                            40
Met Thr Arg Met Pro Asn Leu Met Gly His Glu Asn Gln Arg Glu Ala
Ala Ile Gln Leu His Glu Phe Ala Pro Leu Val Glu Tyr Gly Cys His
                    70
Gly His Leu Arg Phe Phe Leu Cys Ser Leu Tyr Ala Pro Met Cys Thr
                85
                                    90
Glu Gln Val Ser Thr Pro Ile Pro Ala Cys Arg Val Met Cys Glu Gln
                                105
                                                     110
Ala Arg Leu Lys Cys Ser Pro Ile Met Glu Gln Phe Asn Phe Lys Trp
                            120
                                                125
Pro Asp Ser Leu Asp Cys Arg Lys Leu Pro Asn Lys Asn Asp Pro Asn
                        135
                                            140
Tyr Leu Cys Met Glu Ala Pro Asn Asn Gly Ser Asp Glu Pro Thr Arg
                   150
                                        155
Gly Ser Gly Leu Phe Pro Pro Leu Phe Arg Pro Gln Arg Pro His Ser
                165
                                    170
Ala Gln Glu His Pro Leu Lys Asp Gly Gly Pro Gly Arg Gly Gly Cys
                                185
                                                    190
Asp Asn Pro Gly Lys Phe His His Val Glu Lys Ser Ala Ser Cys Ala
                            200
                                                205
Pro Leu Cys Thr Pro Gly Val Asp Val Tyr Trp Ser Arg Glu Asp Lys
                                            220
Arg Phe Ala
225
<210> 78
<211> 29
<212> PRT
<213> Homo sapiens
<400> 78
Asp Arg Val Val Cys Asn Asp Lys Phe Ala Glu Asp Gly Ala Arg Thr
                 5
Val Ala Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu
<210> 79
<211> 29
<212> PRT
<213> Mouse
<400> 79
Asp Arg Val Val Cys Asn Asp Lys Phe Ala Glu Asp Gly Ala Arg Thr
                                    10
Val Ala Gln Gly Thr Asn Lys Glu Gly Cys Thr Ile Leu
            20
                                25
```

<212> PRT

```
<210> 80
<211> 29
<212> PRT
<213> Homo sapiens
<400> 80
Glu Arg Val Val Cys Asn Glu Arg Phe Ser Glu Asp Gly Tyr Arg Thr
Val Val Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu
<210> 81
<211> 30
<212> PRT
<213> Homo sapiens
<400> 81
Asp Arg Val Ala Cys Asn Ala Ser Ile Pro Ala Gln Tyr Lys Ala Ser
                5
                                   10
Thr Val Thr Gln Gly Ser His Asn Lys Ala Cys Thr Met Leu
<210> 82
<211> 30
<212> PRT
<213> Mouse
<400> 82
Asp Arg Val Ala Cys Asn Ala Ser Ser Pro Ala Gln Tyr Lys Ala Ser
                5
                                   10
Thr Val Thr Gln Gly Ser His Asn Lys Ala Cys Thr Met Leu
                            25
<210> 83
<211> 29
<212> PRT
<213> Homo sapiens
<400> 83
Arg Glu Arg Ile Ser Cys Asp Phe Glu Glu Ala Ala Glu Pro Val Leu
                5
                                    10
Ile Gln Glu Gly Leu Lys Asn Thr Gly Cys Ala Ile Ile
<210> 84
<211> 29
<212> PRT
<213> Mouse
<400> 84
Arg Glu Arg Ile Ser Cys Asp Phe Glu Glu Ala Ala Glu Pro Val Leu
                5
                                    10
Ile Gln Glu Gly Leu Lys Asn Thr Gly Cys Ala Ile Ile
            20
                               25
<210> 85
<211> 26
```

```
<212> PRT
<213> Homo sapiens
<400> 85
His Ala Ser Val Ala Cys Ser Arg Glu His Asn His Ile His Tyr Glu
                 5
                                    10
Thr Thr Gly Pro Ala Leu Cys Thr Ile Val
<210> 86
<211> 30
<212> PRT
<213> Homo sapiens
<400> 86
Asp Ser Thr Ala Cys Asn Lys Ala Asp Glu Lys Leu Glu Leu Gly Asp
Thr Val Val Leu Gly Ser Gln Asn Lys Ala Cys Thr Val Leu
<210> 87
<211> 30
<212> PRT
<213> Mouse
<400> 87
Asn Ser Thr Ala Cys Asn Lys Ala Asp Glu Lys Leu Glu Leu Gly Asp
                5
                                    10
Thr Val Val Leu Gly Ser Lys Asn Lys Ala Cys Ser Val Val
                                25 .
<210> 88
<211> 29
<212> PRT
<213> Homo sapiens
<400> 88
Asp Arg Ala Val Cys Val Glu Arg Phe Ser Asp Asp Gly Tyr Arg Thr
                 5
                                    10
Val Ala Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu
                                25
<210> 89
<211> 29
<212> PRT
<213> Mouse
<400> 89
Asp Arg Ala Val Cys Val Glu Arg Phe Ser Asp Asp Gly Tyr Arg Thr
                5
Val Ala Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu
            20
                                25
<210> 90
<211> 65
<212> PRT
<213> Homo sapiens
```

```
<400> 90
His Glu Lys Val Ala Cys Ser Gly Gly Ala Pro Gly Ala Gly Gly Ala
                                    10
Gly Gly Ala Gly Gly Ala Ala Gly Ala Gly Ala Gly Ala Gly
                                25
Ala Gly Gly Pro Gly Gly Arg Gly Glu Tyr Glu Glu Leu Gly Ala Val
                            40
Glu Gln His Val Arg Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Val
Val
65
<210> 91
<211> 66
<212> PRT
<213> Mouse
<400> 91
His Glu Lys Val Ala Cys Ser Gly Gly Ala Pro Gly Ala Gly Gly Arg
Gly Gly Ala Gly Ala Ala Ala Ala Gly Ala Gly Ala Gly Arg
Gly Ala Ser Ser Pro Gly Ala Arg Gly Glu Tyr Glu Glu Leu Gly Ala
Val Glu Gln His Val Arg Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr
Val Val
65
<210> 92
<211> 28
<212> PRT
<213> Homo sapiens
<400> 92
Ala Gln Ser Val Ala Cys Asp Gln Glu Ala Gly Ala Leu Tyr Val Ile
Gln Glu Gly Leu Glu Asn Thr Gly Cys Thr Leu Val
            20
<210> 93
<211> 28
<212> PRT
<213> Mouse
Ala Gln Ser Val Ala Cys Asp Gln Glu Ala Gly Ala Leu Tyr Val Ile
Gln Glu Gly Leu Glu Asn Thr Gly Cys Thr Leu Val
<210> 94
<211> 28
<212> PRT
<213> Homo sapiens
```

```
<400> 94
Ala Glu Ser Ile Ala Cys Asp Arg Asp Ser Gly Gln Leu Tyr Val Ile
                5
                                    10
Gln Glu Gly Leu Glu Ser Thr Gly Cys Thr Leu Val
            20
<210> 95
<211> 25
<212> PRT
<213> Homo sapiens
Gly Gln Val Asp Gly Asp Val Leu Ser Gly Val Cys Phe Val Gly Leu
Asn Asn Val Asp Ala Leu Arg Gly Phe
            20
<210> 96
<211> 25
<212> PRT
<213> Mouse
<400> 96
Gly Gln Val Asp Gly Asp Val Leu Ser Gly Val Cys Phe Leu Gly Leu
                                    10
Asn Asn Val Asp Ala Leu Arg Gly Phe
            20
<210> 97
<211> 25
<212> PRT
<213> Homo sapiens
<400> 97
Gly Gln Ile Asp Gly Asp Leu Leu Ser Gly Val Cys Phe Val Gly Leu
                 5
                                    10
Asn Ser Leu Asp Pro Leu Arg Gly Phe
            20
<210> 98
<211> 25
<212> PRT
<213> Homo sapiens
<400> 98
Asn Lys Ile Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu
                 5
                                    10
Tyr Asp Val Asp Ala Leu Arg Tyr Phe
<210> 99
<211> 25
<212> PRT
<213> Mouse
<400> 99
Asn Lys Ile Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu
```

```
1
                 5
                                                        15
Tyr Asp Val Asp Ala Leu Arg Tyr Phe
           20
<210> 100
<211> 25
<212> PRT
<213> Homo sapiens
<400> 100
Arg Leu Val Asp Ala Asp Glu Leu Thr Gly Leu Cys Tyr Val Gly Asn
                5
Gln Asn Leu Asp Ala Leu Thr Gly Phe
            20
<210> 101
<211> 25
<212> PRT
<213> Mouse
<400> 101
Arg Leu Val Asp Ala Asp Glu Leu Thr Gly Leu Cys Tyr Val Gly Asn
1 5
Gln Asn Leu Asp Ala Leu Thr Gly Phe
            20
<210> 102
<211> 25
<212> PRT
<213> Homo sapiens
<400> 102
Ser Ser Val Asp Gly Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn
                5
                                    10
Gln Asn Leu Asn Ser Leu Arg Arg Phe
            20
<210> 103
<211> 25
<212> PRT
<213> Homo sapiens
<400> 103
Asn Lys Val Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu
                5
Tyr Asp Leu Asp Ala Ser Arg Tyr Phe
            20
<210> 104
<211> 25
<212> PRT
<213> Mouse
<400> 104
Asn Lys Val Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu
Tyr Asp Leu Asp Ala Ser Arg Tyr Phe
```

```
20
                                25
<210> 105
<211> 25
<212> PRT
<213> Homo sapiens
<400> 105
Gly Gln Val Asp Gly Asp Leu Leu Ser Gly Val Cys Tyr Val Gly Leu
Ser Ser Val Asp Ala Leu Arg Gly Phe
            20
<210> 106
<211> 25
<212> PRT
<213> Mouse
<400> 106
Gly Gln Val Asp Gly Asp Leu Leu Ser Gly Val Cys Tyr Val Gly Leu
Ser Ser Val Asp Ala Leu Arg Gly Phe
<210> 107
<211> 25
<212> PRT
<213> Homo sapiens
<400> 107
Ser Ser Val Asp Gly Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn
                                    10
Gln Ser Leu Asp Asn Leu Arg Gly Phe
<210> 108
<211> 25
<212> PRT
<213> Mouse
<400> 108
Ser Ser Val Asp Gly Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn
                5
                                    10
Gln Ser Leu Asp Asn Leu Arg Gly Phe
<210> 109
<211> 25
<212> PRT
<213> Homo sapiens
<400> 109
Arg Lys Val Ala Gly Asp Glu Leu Thr Gly Leu Cys Tyr Val Ala Ser
                5
                                    10
Thr Asp Ala Ala Leu Thr Gly Phe
            20
```

```
<210> 110
<211> 25
<212> PRT
<213> Mouse
<400> 110
Arg Lys Val Ala Gly Asp Glu Leu Thr Gly Leu Cys Tyr Val Ala Ser
                5
                                    10
Met Asp Pro Ala Ala Leu Thr Gly Phe
            20
<210> 111
<211> 24
<212> PRT
<213> Homo sapiens
<400> 111
Arg Arg Val Ala Gly Asp Glu Leu Thr Gly Val Cys Tyr Val Gly Ser
                                   10
Met Asp. Val Asn Ala Leu Thr Gly
<210> 112
<211> 39
<212> PRT
<213> Homo sapiens
<400> 112
Ala Phe Arg Asp Gln Trp Glu Arg Ser Trp Val Ala Gln Ser Cys Lys
1
                5
                                   10
Ser Tyr Ala Ile Pro Cys Pro His Leu Gln Ala Gly Gly Ala Pro
            20
                                25
Pro His Pro Pro Met Ser Pro
        35
<210> 113
<211> 39
<212> PRT
<213> Mouse
<400> 113
Ala Phe Arg Asp Gln Trp Glu Arg Ser Trp Val Ala Gln Ser Cys Lys
                5
                                   10
                                                        15
Ser Tyr Ala Ile Pro Cys Pro His Leu Gln Gly Gly Gly Val Pro
                                25
                                                    30
Pro His Pro Pro Met Ser Pro
      35
<210> 114
<211> 32
<212> PRT
<213> Homo sapiens
<400> 114
Ala Phe Arg Glu His Trp Glu Arg Ser Trp Val Ser Gln His Cys Lys
                                    10
Ser Leu Ala Ile Pro Cys Pro Ala His Tyr Thr Pro Arg Met Ser Pro
```

25 30 <210> 115 <211> 32 <212> PRT <213> Homo sapiens <400> 115 Ala Tyr Arg Gly Ile Trp Glu Thr Trp Ile Gln Glu Arg Cys Arg 10 Glu Tyr His Ile Pro Cys Pro Tyr Gln Val Thr Gln Met Ser Arg Pro <210> 116 <211> 32 <212> PRT <213> Mouse <400> 116 Ala Tyr Arg Gly Ile Trp Glu Thr Thr Trp Ile Gln Glu Arg Cys Arg 10 Glu Tyr His Ile Pro Cys Pro Tyr Gln Val Thr Gln Met Ser Arg Pro 25 <210> 117 <211> 17 <212> PRT <213> Homo sapiens <400> 117 Ser Asn Trp Ala Leu Phe Arg Tyr Ser Ala Asp Asp Ser Asn Met Ala 1 Val <210> 118 <211> 17 <212> PRT <213> Mouse Ser Asn Trp Ala Leu Phe Arg Tyr Ser Ala Asp Asp Ser Asn Met Ala 1 5 10 Val <210> 119 <211> 26 <212> PRT <213> Homo sapiens <400> 119 His Tyr Arg Glu Ser Trp Glu Ala Ala Leu Thr Cys Ala Cys Pro Gly 5 10 His Asp Thr Gly Gln Pro Arg Ala Lys Pro 20

```
<210> 120
<211> 32
<212> PRT
<213> Homo sapiens
<400> 120
Val Asn Arg Ile Thr Trp Glu Ile Thr Trp Val Ser Asp His Cys Arg
                5
                                   10
Gln Tyr His Ile Pro Cys Pro Tyr Gln Ala Lys Ala Lys Ala Arg Pro
                                25
<210> 121
<211> 32
<212> PRT
<213> Mouse
<400> 121
Val Asn Arg Ile Thr Trp Glu Met Thr Trp Phe Ser Asp His Cys His
                                10
Gln Tyr Arg Ile Pro Cys Pro Tyr Gln Ala Asn Pro Lys Ala Arg Pro
                                25
<210> 122
<211> 32
<212> PRT
<213> Homo sapiens
<400> 122
Ala Phe Arg Glu His Trp Glu Arg Thr Trp Leu Leu Gln Thr Cys Lys
                5
                                  10
Ser Tyr Ala Val Pro Cys Pro Pro Gly His Phe Pro Pro Met Ser Pro
                                25
<210> 123
<211> 32
<212> PRT
<213> Mouse
<400> 123
Ala Phe Arg Glu His Trp Glu Arg Thr Trp Leu Leu Gln Thr Cys Lys
1
                5
                                    10
Ser Tyr Ala Val Pro Cys Pro Pro Arg His Phe Ser Pro Met Ser Pro
                                25
<210> 124
<211> 26
<212> PRT
<213> Homo sapiens
<400> 124
His Asn Arg Pro Arg Trp Glu Ala Thr His Asn Cys Pro Cys Leu Arg
                5
Asp Leu Gln Pro Asp Gln Ala Arg Arg Pro
           20
<210> 125
<211> 26
```

```
<212> PRT
<213> Mouse
<400> 125
His Asn Arg Pro Arg Trp Glu Ala Thr His Asn Cys Pro Cys Leu Arg
                5
                                    10
Asp Leu Gln Pro Asp Gln Ala Arg Arg Pro
      20
<210> 126
<211> 35
<212> PRT
<213> Homo sapiens
<400> 126
Leu Asn Met Asp Phe Trp Arg Leu Arg Ala Thr Glu Gln Pro Cys Ala
Ala Ala Gly Pro Gly Gly Arg Arg Asp Cys Ser Leu Pro Gly Gly
                                25
Ser Val Pro
       35
<210> 127
<211> 35
<212> PRT
<213> Mouse
<400> 127
Leu Asn Met Asp Phe Trp Arg Leu Arg Ala Thr Glu Gln Pro Cys Thr
                                   10
Ala Ala Thr Val Pro Gly Gly Arg Arg Asp Cys Ser Leu Pro Gly Gly
                                25
Ser Val Pro
       35
<210> 128
<211> 33
<212> PRT
<213> Homo sapiens
<400> 128
Leu Asn Met Asp Tyr Trp Lys Ile Leu Ala Ala Gln His Lys Cys Lys
                5
                                                        15
Met Asn Asn Gln Thr Lys Thr Leu Asp Cys Leu Met Ala Ala Ser Ile
                                25
<210> 129
<211> 48
<212> PRT
<213> Homo sapiens
<400> 129
Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Ser Leu Leu Pro Glu
                5
                                    1.0
Phe Trp Thr Ser Asn Pro Gln His Gly Gly Gly His Arg Gly Gly Phe
```

```
20
                                25
                                                     30
Pro Gly Gly Ala Gly Ala Ser Glu Arg Gly Lys Phe Ser Cys Pro Arg
                            40
<210> 130
<211> 51
<212> PRT
<213> Homo sapiens
<400> 130
Val Gly Gln Asn His Ser Glu Asp Gly Ala Pro Ala Leu Leu Thr Thr
Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala Gly Gly Thr Pro Gly Gly
                                25
Pro Gly Gly Gly Ala Pro Pro Arg Tyr Ala Thr Leu Glu His Pro
       35
                            40
Phe His Cys
    50
<210> 131
<211> 26
<212> PRT
<213> Homo sapiens
<400> 131
Leu Val Asp Leu Asn Leu Ala Gly Glu Pro Thr Glu Gly Ala Pro Val
                5
Ala Val Gln Arg Asp Tyr Gly Phe Trp Cys
<210> 132
<211> 20
<212> PRT
<213> Homo sapiens
<400> 132
Cys Met Glu Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr
1
Pro Ile Gln Pro
            20
<210> 133
<211> 46
<212> PRT
<213> Homo sapiens
<400> 133
Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro Arg Pro
                5
Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro Ala Ser
           20
                                25
Gly Gly Glu Cys Pro Ala Gly Gly Pro Phe Val Cys Lys Cys
                            40
<210> 134
<211> 26
<212> PRT
```

```
<213> Homo sapiens
  <400> 134
  Thr Phe Asp Pro His Thr Glu Phe Leu Gly Pro Gln Lys Lys Thr Glu
                  5
                                      10
  Gln Val Gln Arg Asp Ile Gly Phe Met Cys
  <210> 135
  <211> 50
  <212> PRT
  <213> Homo sapiens
  <400> 135
  Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Pro Gly Gly Pro
  Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Leu Pro Phe Thr Ala
                                  2.5
  Leu Pro Pro Gly Ala Ser Asp Gly Arg Gly Arg Pro Ala Phe Pro Phe
                              40
  Ser Cys
     50
  <210> 136
  <211> 86
  <212> PRT
  <213> Homo sapiens
  <400> 136
  Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala Pro Ser Pro
   1
                  5
                                      10
  Pro Arg Arg Leu Pro Pro Pro Pro Gly Glu Gln Pro Pro Ser Gly
                                  25
  Ser Gly His Gly Arg Pro Pro Gly Ala Arg Pro Pro His Arg Gly Gly
                              40
  Gly Arg Gly Gly Gly Asp Ala Ala Pro Pro Ala Arg Gly Gly
                          55
  Gly Gly Gly Lys Ala Arg Pro Pro Gly Gly Ala Ala Pro Cys
                      70
  Glu Pro Gly Cys Gln Cys
  <210> 137
  <211> 37
  <212> PRT
<213> Homo sapiens
  <400> 137
  Cys Met Glu Ala Pro Glu Asn Ala Thr Ala Gly Pro Ala Glu Pro His
                                      10
  Lys Gly Leu Gly Met Leu Pro Val Ala Pro Arg Pro Ala Arg Pro Pro
              20
                                  25
  Gly Asp Leu Gly Pro
          35
  <210> 138
  <211> 38
```

<212> PRT <213> Homo sapiens